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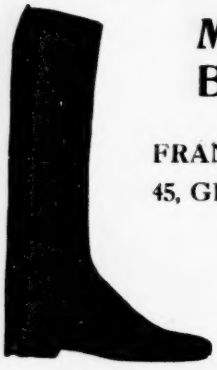

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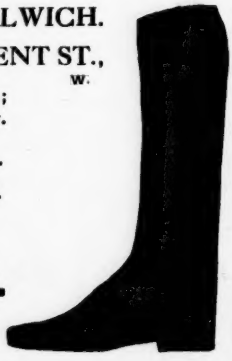

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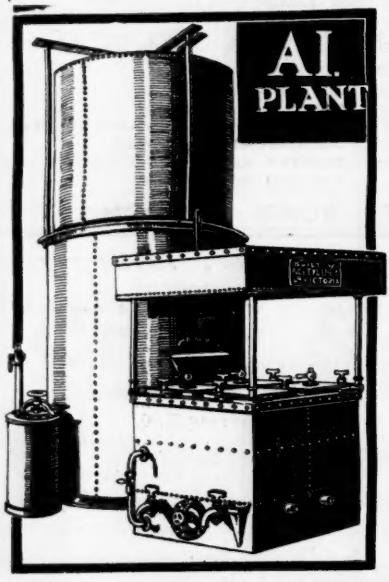

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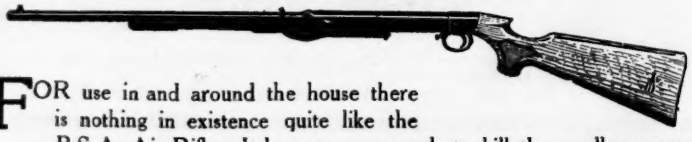

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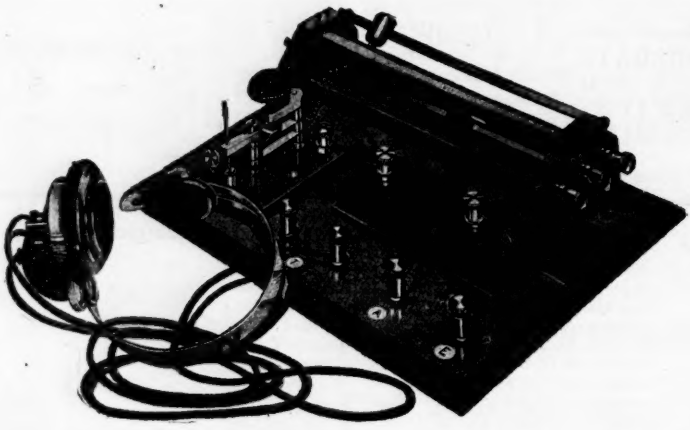

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PART IV.—TERRITORIAL OFFICERS AND THE PRESENT CRISIS.—Address at the Annual Dinner of the Men of Kent and the Kentish Men.

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RANGEFINDERS AND FIRE CONTROL

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THE FULL MILITARY BAND OF THE COLDSTREAM GUARDS, WITH INSTRUMENTS IN USE AT THE PRESENT DAY.

[See page 152.]

[Photo. by Russell & Sons, London and Windsor.

THE BAND OF THE ROYAL GARRISON ARTILLERY, DOVER, WITH A SET OF BAND INSTRUMENTS IN USE 120 YEARS AGO (Lent by the Rev. F. W. Galpin, M.A., Vicar of Harlow.)

[See page 153]

[Photo by Raymond Reece, Dover.]

[See page 153]

ROYAL UNITED SERVICE INSTITUTION.

FEBRUARY, 1913.

SECRETARY'S NOTES.

I.—COUNCIL.

The following Members of the Council retire at the Anniversary Meeting on Tuesday, March 4th, 1913, having completed three years' service, *viz.* :—

Lieut.-General J. H. Bor, C.B., C.M.G., Royal Marine Artillery. (Extra Eq. H.M. The King).

Major-General Sir T. Fraser, K.C.B., C.M.G., late Royal Engineers.

The following officers have been proposed for election, *viz.* :—

Lieut.-General Sir J. M. Grierson, K.C.B., C.V.O., C.M.G. Commanding Eastern Command.

Major-General Sir T. Fraser, K.C.B., C.M.G., late Royal Engineers.

Lieut.-General J. H. Bor, C.B., C.M.G., Royal Marine Artillery. (Extra Eq. H.M. The King).

II.—OFFICERS JOINED.

The following officers joined the Institution during the month of January, 1913 :—

Lieutenant A. L. Snagg, R.N.
Captain C. E. J. Wahl, R.G.A.
Major J. T. Carpenter-Garnier, Scots Guards.
Captain A. Delmé-Radcliffe, I.A.
Lieutenant W. G. Lindsell, R.A.
Lieutenant E. G. Rhodes, R.N.
Lieutenant J. N. Biggs, R.G.A.
Second-Lieutenant R. C. Linley-Howlden, R.G.A. (S.R.).
Lieutenant C. Tweedale, Corps of Guides, Canadian Forces.
Captain E. W. Maude, Royal West Surrey Regiment.
Lieutenant-Colonel G. H. Geddes, R.F.A.
Captain W. E. Nicol, Grenadier Guards.
Lieutenant J. G. Riddick, R.E. (T.F.).
Sub-Lieutenant J. E. Williams, R.N.
Lieut.-Colonel E. B. Cuthbertson, M.V.O., 2nd Monmouthshire Regiment (T.F.).
Lieutenant W. B. Gray-Buchanan, Scottish Rifles.
Captain W. N. S. Alexander, Connaught Rangers.
Captain A. Dickson, S. Lancashire Regiment.
Captain E. B. Maunsell, I.A.
Lieutenant J. C. Muirhead-Gould, R.N.
Second-Lieutenant H. D. St. G. Cardew, 2nd Dragoon Guards.
Second-Lieutenant E. Studd, Calcutta Light Horse.
Colonel E. C. Stanton, R.E.
Captain J. J. Dobie, 3rd Hussars.
Lieutenant J. F. Edwards, S. Wales Borderers.
Lieutenant F. G. Schurr, R.N.

[Photo by Raymond Reece, Dover.]

Captain E. H. H. Westby, Welsh Regiment.
Captain J. E. S. Brind, R.G.A.
Lieutenant J. W. Rivett-Carnac, R.N.
Major H. J. P. Parry, late Middlesex R.E. Volunteers.
Lieutenant W. M. Burt-Marshall, Argyllshire and Sutherlandshire Highlanders.
Captain F. G. Crick, R.M.A.

III.—HONORARY LIFE MEMBER.

Mr. D. Hastings Irwin has been elected by the Council an Honorary Life Member of the Institution. This gentleman has written a standard book on military medals, and is a well-known authority on old military costumes, and has presented to the Museum several exhibits.

IV.—JOURNAL.

Members not requiring the JOURNAL to be sent them every month are requested to inform the Secretary to that effect, when they will be placed on the non-JOURNAL list, and as the postage of the JOURNAL is a very large item in the annual expenditure, a considerable saving will be realized thereby.

Members on the non-JOURNAL list requiring any particular issue can always obtain same on application to the Secretary, but it will be necessary for such Members to keep the Secretary's office informed of their change of address in order that they may receive such other notices of the Institution which are issued from time to time.

V.—NAVAL ESSAY.

The National Service League offer £100, first prize; £25, second prize; for the best Essay on the following subject, *viz.*:—

> "An Examination into the extent to which the existence of a Home Defence Army, capable of protecting the shores of this country against serious attack, would, in war, assist our Navy to secure and maintain the command of the seas and to keep open our lines of food supply."

Competitors must be officers on the Active List of the Royal Navy. The conditions are similar to those of this Institution's Gold Medal Essay, and can be had on application of the Secretary, N.S.L., 72, Victoria Street, London, S.W.

VI.—ANNIVERSARY MEETING.

The Anniversary Meeting will be held on Tuesday, March 4th, at 4 p.m., in the Theatre of the Institution. The Council will present their Annual Report. The election to the Council of new Members will take place, and the announcement of the Gold Medal Essayist for 1912.

VII.—MILITARY HISTORY LECTURES.

The Council have decided for the present to discontinue the course of Military History Lectures. The General Officer Commanding the London District has arranged for a similar course of lectures, which will take place in the Theatre of the Institution. Members of the Institution

are eligible to attend the same, and for which there will be no fee charged. The dates for these lectures are as follows, and the hour is 4 p.m. :—

Thursday, March 6th.	Monday, March 10th.
Friday, March 7th.	Tuesday, March 11th.

The Subject, "The Napoleonic Campaign of 1805." The first two lectures will be delivered by Major G. S. Clive, Grenadier Guards; the two latter by Major the Hon. G. Morris, Irish Guards. Members wishing to attend the course should furnish the Secretary with their names.

VIII.—EXTRA LECTURE.

A lecture will be delivered by Mr. Frank Fox, War Correspondent of the *Morning Post*, on "Experiences in the Balkan War," on Wednesday, March 26th, at 3 p.m.

IX.—ADDITIONS TO THE MUSEUM.

(6521). Shako-plate, British Italian Legion, raised during the Crimean War, 1855.—Given by D. Hastings Irwin, Esq.

(6522). The following Medals and Clasps have been added to the Mint Collection of Naval and Military Medals (485), which completes this collection to the end of 1912.

Medals. (Obverse and reverse).

I. *King Edward VII. Effigy.*

1. Long Service, West Africa Frontier Force.
2. Distinguished Conduct, West Africa Frontier Force. With Clasp for North Nigeria, 1908.
3. Long Service, King's African Rifles.
4. Distinguished Conduct, King's African Rifles.
5. India Distinguished Service.
6. Territorial Force (Efficiency).
7. Special Reserve.
8. Royal Naval Reserve.
9. Colonial Permanent Forces.
10. India General Service, 1908. With Clasp for North-West Frontier, 1908.

II. *King George V. Effigy.*

1. Long Service, Regular Army.
2. Long Service, Royal Navy.
3. Long Service, Colonial Auxiliary Forces.
4. Long Service, Colonial Permanent Forces.
5. Long Service, Royal Naval Reserve.
6. Long Service, Special Reserve.
7. Long Service, Militia.
8. Long Service, Territorial Force.
9. Long Service, Volunteers.
10. Long Service, West African Frontier Force.
11. Long Service, King's African Rifles.
12. Distinguished Conduct, Regular Army.
13. Distinguished Conduct, King's African Rifles.
14. Distinguished Conduct, West African Frontier Force.
15. Meritorious Service.
16. Good Shooting, Royal Navy.

Clasps.

The following Clasps have been added to the Medals specified :—

I. AFRICAN GENERAL SERVICE MEDAL.

West Africa, 1909-10.	South Nigeria, 1902.
Somaliland, 1908-10.	South Nigeria, 1903.
West Africa, 1906.	South Nigeria, 1903-4.
West Africa, 1908.	South Nigeria, 1904.
East Africa, 1902-1904.	South Nigeria, 1904-5.
East Africa, 1905.	South Nigeria, 1905.
East Africa, 1906.	South Nigeria, 1905-6.
North Nigeria, 1906.	North Nigeria, 1903-4.
Nandi, 1905-6.	North Nigeria, 1904.
Kissi, 1905.	

II. SUDAN KHEDIVIAL MEDAL.

Nyam-Nyam.	Katfia.
Talodi.	Nyima.

III. ROYAL NAVY, GOOD SHOOTING.

"Dominion."	"Foresight."
"Illustrious."	"Duncan."
"Lee."	"Torpedo-boat 20."
"Bulwark."	"Torpedo-boat 31."
"Virago."	"Africa."
"Carnarvon."	"Britannia."
"Devonshire."	"Exmouth."
"Diadem."	"Jupiter."
"Britannia."	"Bellerophon."
"Janus."	"Torpedo-boat 11."
"Prince George."	"Torpedo-boat 30."
"Bedford."	"Swiftsure."
"Warrior."	"Minotaur."
"Natal."	"Natal."
"Hibernia."	"Powerful."
"Mars."	"Jupiter."
"Inflexible."	

Given by the Master of the Mint.

(6529). Model of the 2nd Rate 90-Gun Line-of-Battle Ship "Albemarle."

This vessel was built at Harwich by Isaac Betts in 1680 (temp. Charles II.). Her dimensions were: Length 140 feet 11 inches; beam, 44 feet 4 inches; and depth, 19 feet 7½ inches—her tonnage being 1,395, and her draft, 21 feet.

She had a complement of 660 men, and took part, against the French, in the battle off Beachy Head in 1690, the battle of Barfleur in 1692, and the destruction of De Tourville's fleet at La Hogue in the latter year.

She was renamed "Union" in 1711.

The Model was presented to the Institution as being that of the "Royal James" (built in 1675), but recent evidence tends to show that this was a mistake.—Given by Captain E. H. Scott, R.N.

(6530). A series of 8 Aquatints, entitled "Sailors on Shore," published in 1825 by John Fairburn, Broadway, Ludgate Hill. These pictures exhibit the diversity and variety of dress of the seamen of the Royal Navy at that period.

(6531). A Chart showing the Flags of the Japanese Daimyos which was handed on from flagship to flagship on the China Station. It was received from H.M.S. "Ocean" in 1871, when she was relieved by H.M.S. "Iron Duke."—Given by The Rev. R. A. Fawkes, Lieut. R.N., retired.

(6532). A Japanese Samurai War Quiver containing 19 Arrows, Bow and pair of Japanese Stirrup Irons, which were probably in use up to 1854.—Given by Major-General F. W. Hemming.

(6535). A Japanese Daimyos Bâton, probably in use up to 1854. The Bâton was used not only as a sign of rank and office, but also to direct the movements of the Samurai in the field of battle, by waving it in a peculiar manner.—Given by Major-General F. W. Hemming.

(6536). A Pair of Wine Decanter Stands made from the oak of H.M.S. "Belleisle," and each bearing on a silver plate the following inscription, *viz.*: "Belleisle, 74 guns, Captain W. Hargood, Trafalgar, 21st October, 1805, from his friend Rear-Admiral Ross."—Given by Miss Hargood.

(6537). A Water-colour Painting, showing the panoramic view of the Gulf of Kertch. Executed during the Crimean War by Captain G. M. Pasley, R.H.A., who was serving in the Turkish Contingent.—Bequeathed by the late Lady Tyler.

(6538 & 6542). A Kassia Shield, short Native Sword, two Daggers, and a receptacle for carrying water, which were taken during the frontier warfare with the Kassia Tribes on the North-East Frontier of Bengal, in January, 1863.—Given by Commander C. R. Low, late Indian Navy.

(6543). A British Officer's Sword, a relic of the expedition from Bombay in 1819 against the piratical tribes in the Persian Gulf. The sword was taken from a pirate dhow by Captain Kinchant, Indian Navy, and had formerly belonged to an officer who fell during the operations.—Given by Commander C. R. Low, late Indian Navy.

PRINCIPAL ADDITIONS TO LIBRARY.

January, 1913.

Tactics Made Easy. By Lieut.-Colonel S. T. Banning. Crown 8vo. 3s. 6d. (Presented by the Publishers) (Gale & Polden). London, 1912.

Military Engineering During the Great Civil War, 1642—9. By Lieut.-Colonel W. G. Ross, R.E. (Professional Papers of the Corps of Royal Engineers). 8vo. (Presented by R. E. Institute, Chatham). W. & J. Mackay & Co.). Chatham, 1888.

The Transformations of War. By Commandant J. Colin. Translated by Bt.-Major L. H. R. Pope-Hennessy. 8vo. 7s. 6d. (Presented by the Publishers) (Hugh Rees, Ltd.). London, 1912.

Resistance of Ships and Screw Propulsion. By D. W. Taylor, Naval Constructor, U.S.N. 8vo. 10s. (The Macmillan Co.). New York, 1910.

The Business of Book-binding. By A. J. Philip. Crown 8vo. 6s. (Stanley Paul & Co.). London, 1912.

A Handbook for Travellers in India, Burma, and Ceylon. Crown 8vo. 20s. (John Murray). London, 1911.

Explosives.. By Dr. H. Brunswig. Translated and annotated by C. E. Munro and A. L. Kibler. 1st Edition. 8vo. 12s. 6d. (Presented by the Publishers) (Chapman & Hall, Ltd.). London, 1912.

Opinions Allemandes sur la Guerre Moderne. 8vo. 2s. 6d. (Berger-Levrault). Paris, 1912.

Die Flagge—Geschichte der Entwickelung der auf den Kriegs-und Handelsschiffen zur Verwendung Kommenden Flaggen unter Berücksichtigung des Gebranchs von Flaggen zu Signal-und Salutzwecken. By Vice-Admiral R. Siegel, German Imperial Navy. Imp. 8vo. 25s. Illustrated. (Presented by the Publishers) (Dietrich Reimer). Berlin, 1912.

Gordons under Arms—A Biographical Muster Roll of Officers named Gordon in the Navies and Armies of Britain, Europe, America, and in the Jacobite Risings. By Constance O. Skelton and John M. Bulloch. Imp. 8vo. Illustrated. (Presented by Mrs. C. O. Skelton). (The University Press). Aberdeen, 1912.

Letters of Major-General Fitz-Roy Hart-Synnot, C.B., C.M.G. Edited by B. M. Hart-Synnot. 8vo. 12s. 6d. Illustrated. (Edward Arnold). London, 1912.

La Bataille Navale—Etudes sur les facteurs tactiques. By Lieutenant de Vaisseau A. Baudry. Suivi de " Remarques " par le Capitaine Breveté G. Laur, de la Section Technique d'Infanterie. 8vo. 3s. 9d. (Berger-Levrault). Paris, 1912.

Gentleman's Magazine Index—Biographical and Obituary Notices, 1731—1780. General-Editor W. P. W. Phillimore. 8vo. 21s. (British Record Society). 8vo. London, 1891.

Mit den Türken in der Front im Stabe Mahmud Muchtar Paschas. By Major G. von Hochwaechter. 5th Edition. 8vo. 3s. 4d. Illustrated. (E. S. Mittler & Sohn). Berlin, 1913.

The Ship of the Line in Battle. By Admiral Sir Reginald Custance. 8vo. 5s. (William Blackwood & Sons). Edinburgh, 1912.

The " Novik," and the Part she Played in the Russo-Japanese War, 1904. By Lieutenant A. P. Steer, Imperial Russian Navy. Translated by L.A.B. Crown 8vo. 3s. 6d. (John Murray). London, 1913.

Simple Tactical Schemes with Solutions. By Captain R. S. Waters, 40th Pathans. 8vo. 4s. 6d. (Presented by the Publishers). London, 1913.

The Soldier's Foot and the Military Shoe. By Major E. L. Munson, Medical Corps, U.S.A. 8vo. Illustrated. (Presented by the U.S. Cavalry Association). (George Banta Publishing Co.). Fort Leavenworth, Kansas, 1912.

British Battles—Crécy. By Hilaire Belloc. 12mo. 1s. (Stephen Swift & Co., Ltd.). London, 1912.

Commodore Sir John Hayes, his Voyage and Life (1767—1831), with some account of the Voyage of Admiral D'Entrecasteaux of 1792—3. By Ida Lee. 8vo. 7s. 6d. Illustrated. (Longmans, Green & Co.). London, 1912.

The Balkan War Drama. By a Special Correspondent. 8vo. 3s. 6d. Illustrated. (Andrew Melrose). London, 1913.

The Life of John Jervis, Admiral Lord St. Vincent. By Captain W. V. Anson, R.N. 8vo. 10s. 6d. Illustrated. (John Murray). London, 1913.

THE JOURNAL
OF THE
ROYAL UNITED SERVICE INSTITUTION.

VOL. LVII. FEBRUARY, 1913. NO. 420.

[Authors alone are responsible for the contents of their respective Papers.]

REGIMENTAL BANDS: THEIR HISTORY AND RÔLE OF USEFULNESS.

By SECOND LIEUTENANT J. MACKENZIE ROGAN, M.V.O., MUS. DOC.

On Wednesday, December 11th, 1912.

FIELD-MARSHAL THE EARL ROBERTS, V.C., K.G., K.P., G.C.B., O.M., G.C.S.I., G.C.I.E., V.D., in the Chair.

SYNOPSIS OF LECTURE.

I. HISTORICAL SURVEY OF THE DEVELOPMENT OF MILITARY MUSIC.—The kettle drums of the Life Guards at the Restoration (1660).—Establishment of Musicians in a Line Regiment, 1661.—Introduction of Oboes, 1684.—Attested soldiers first employed as musicians, 1785.—What military music owes to Frederick the Great and Napoleon.—Neglect of military music in the period before the Crimean War.—Improvements effected by the Duke of Cambridge; establishment of the Royal Military School of Music.—Credit due to the British officer.

II. VALUE OF BANDS TO THE ARMY.—How regimental bands are maintained.—Limited promotion open to bandsmen.—Efficiency of bandsmen as soldiers.—Objections to station or divisional bands.—Good influence of bands in India and the Colonies.—Bands indispensable for amusements at isolated stations.—Examples of moral influence of bands; French bands in the Crimea, bands in Upper Burma, 1886-88, band of the 67th Regiment in Afghanistan, 1878-80.—Value of bands for recruiting.

III. THE VALUE OF MILITARY BANDS TO THE PUBLIC.—Popularity of military bands a proof of their value.—Opportunities they afford the public to hear good music.—How military

bands have raised the standard ofmusical taste.—Opportunity for composers to write for military bands.—Wind bands and string bands.—Enthusiasm displayed by the Canadians for military music (1903).—The West Yorkshire Regiment and the "Ça Ira."

IV. CONCLUSION.

The music played at the conclusion of the lecture was as follows :

1. *Slow March* *"Scipio"* *Handel*

This has been used as a Regimental Slow March for the past 100 years or more, and is still one of the Slow Marches used by the Grenadier Guards, and is also played by the Massed Bands of the Brigade of Guards as a General's Salute.

2. *The old Slow March of the 43rd Light Infantry.*

This March was used as a Regimental Slow March many years before the 43rd were made Light Infantry in 1803, and is written in the style of Marches played in those days by Regimental Bands generally.

3. *Slow March* *"Figaro"* *Mozart*

In an old copy of this Music in the possession of the Coldstream Guards, it is described as follows : The Duke of York's new March as performed by His Royal Highness's New Band in the Coldstream Regiment of Guards, composed and arranged for the Piano Forte and Harpischord by C. F. Eley.

4. *The British Grenadiers.*

This tune was founded on an air of the Sixteenth Century, and is so well known that it is not necessary to say more about it, further than it is the Regimental Quick Step of the Royal Regiment of Artillery, the Grenadier Guards and several of the Fusilier Regiments.

5. *Tarantelle del Belphegor* *Roch Albert*

This piece was played by request to show the technique of a Full Military Band of the present day.

The lecture was illustrated by the full military band of the Coldstream Guards (with the kind permission of Colonel the Hon. W. Lambton, C.M.G., M.V.O., D.S.O., and the officers of

the regiment) and by the band of the Royal Garrison Artillery, Dover (by permission of the Officer Commanding).

The Council desire to express their thanks to Mr. P. F. Battishill, Bandmaster, R.G.A., Dover, for his enterprise in undertaking to give the illustrations on the old band instruments, especially in view of the fact that several of the better-known regimental bands were unable to see their way to do so.

The old band instruments were kindly placed at the disposal of the Institution, from the collection of such instruments owned by the Rev. F. A. Galpin, of Harlow, and the Council desire to express their gratitude to that gentleman for having done so, and also to Mr. Oliver Hawkes, of Messrs. Hawkes & Son, for his great assistance in the matter.

Owing to the very large number of members desiring to attend this lecture, the accommodation at the Theatre of the Institution was inadequate, and Messrs. Chappell & Co. kindly placed the Queen's Hall at the disposal of the Council.

I.—HISTORICAL SURVEY OF THE DEVELOPMENT OF MILITARY MUSIC.

MUSIC and the profession of arms have been closely associated from the earliest period. The Israelites had their trumpets and timbrels, the Egyptians their trumpets and drums, the Greeks trumpets and flutes, and the Romans their different forms of horns. The ancient Britons were inspired by the songs of their Druids, while both Saxons and Danes chanted odes to their war gods. The Crusaders followed their minstrels, and in mediæval times all passages of arms were prefaced by a fanfare by the heralds.

It is impossible within the limits of this paper to discuss the origin and gradual progress of martial music, but it must be conceded that the inspiriting power of music and its inseparable conjunction with the clash of arms has been recognized from time immemorial.

The British Army dates from 1660, and though the development of martial music for many years was slow, provision for

certain instrumentalists was made at the very beginning. The historical records of the Life Guards record that at the Restoration in 1660, Charles II. was met by the King's Life Guards with their kettle drums and trumpets, and in the warrant for the formation of the Tangiers Regiment (now the Queen's Royal West Surrey Regiment) in 1661, provision is made for two drummers per company, with pay at 1s. a day. The official establishment of musicians for a line regiment remained at two drummers per company, and two fifers per regiment until 1803.

The introduction of wind instruments and the formation of regimental bands was a gradual process entirely dependent on the initiative and generosity of the officers.

The oboe was the first instrument introduced into our service to supplement the drums and fifes, and a warrant of 1684 authorized the employment of twelve oboes in the regiments of Foot Guards. Line regiments followed this example, and the introduction of the oboe may therefore be regarded as the starting point of regimental bands.

Germany at this period led the way in military music, and small bands of four to six performers of German origin were engaged by regiments at the expense of the officers.

The first record we have of attested soldiers being employed as musicians in a regimental band is that of the Coldstream Guards, for whom, in 1785, H.R.H. the Duke of York enlisted twelve musicians in Hanover; one of these men received the appointment of "Music-Major." Prior to that date musicians had been hired by the month to play the King's Guard from the Horse Guards Parade to St. James's Palace. The music played was of the simplest kind and only march music was used.

Military bands owe much to that great soldier, Frederick the Great, who was one of the first to realize the value of military bands in popularizing military measures. Under him Germany was the first to establish uniform military bands.

Increasing interest brought about the introduction of new instruments. Gradually clarinets, horns, trumpets, flutes, bassoons and serpents were added. The clarinet replaced the oboe as a leading instrument, and is now as important to the military band as the violin is to the orchestra.

Towards the end of the 18th century regimental bands had become almost universal, though their establishment and maintenance still remained voluntary on the part of officers.

The inspection reports of this period, in nearly every case, record, "This regiment is now in possession of a band." It is also interesting to note that in the General Regulations and Orders, dated 1786, it is laid down that at the General Salute "the musicians are to play 'God save Great George our King,' and all drummers to beat a march."

It is evident from the following order published in August, 1803, that a practice was growing up of providing bandsmen

or musicians from among the soldiers in the ranks. The order is also interesting as being the first to deal with regimental bands generally.

Horse Guards,
5th August, 1803.

"It is His Majesty's pleasure that in regiments having bands of musicians, not more than one private soldier of each troop or company shall be permitted to act as musicians, and that one non-commissioned officer shall be allowed to act as Master of the Band. These men are to be drilled and instructed in their exercise and in case of actual service are to fall in with their respective troops or companies completely armed and accoutred.

"H.R.H. the Commander-in-Chief desires that General Officers Commanding in Districts will immediately communicate the above order to the several regiments under their command and strictly enforce its observance."

The development of the military spirit in France under the first Napoleon led to great improvements in military bands, a subject to which he gave much attention. He held that "music, of all liberal arts, has the greatest influence over the passions, and is that to which the legislator ought to give the greatest encouragement."

The association of our Army with the allied forces on the Continent, and with the French Army after 1815, assisted in the progress of our own bands, though this progress was not at the public expense.

In 1822 the authorized establishment of regimental bands was fixed at ten musicians, not including black men or boys, and in 1823 this number to meet the requirements of new instruments was increased to fourteen.

From this time onward until the Crimean period, though music was looked upon as a necessity it was left to look after itself in haphazard fashion. There was no system of training army musicians, and no uniformity among those who directed them. Each band had its own musical pitch, and the discordant result of a performance of the National Anthem by combined bands at a review of our troops at Scutari in 1854, was a masterly example of our ineptitude and inefficiency in military band training and organization.

Happily, at the close of the Crimean war, the attention of H.R.H. the Duke of Cambridge was drawn to our want of military musical organization; the result was the establishment of the Royal Military School of Music at Kneller Hall. At this period the men in charge of our Army bands were invariably civilians, and the majority were foreigners. These were gradually replaced by British musicians (drawn mainly from regimental bands) who, after being trained at the school, were sent to regiments as bandmasters. Among these early graduates

were some of our most able bandmasters, and our indebtedness to them is great, for they were the men who laid the foundations of our successful military bands of to-day.

I regret that the limits of this paper permit of only a very hurried and cursory glance at the history of our military bands. The subject is full of interest to the student of military history as well as to the musician. One point is particularly prominent, and that is, that it is to the British officer that the British Army is indebted for the regimental bands of to-day. It was not until 1904 that the State recognized its responsibility in regard to their maintenance.

II.—VALUE OF MILITARY BANDS TO THE ARMY.

The establishment of the band of a line battalion is fixed at one sergeant, one corporal, and twenty musicians. It goes without saying that no regimental band can be kept efficient with these numbers. How then are regimental bands recruited and maintained?

Firstly, by the enlistment of boys either already trained as musicians or to be trained as such.

Secondly, by taking men from the ranks.

Thirdly, by training efficient soldiers as acting bandsmen to supplement the authorized establishment.

But even then the source of supply is limited, and a commanding officer has many difficulties to contend with. One, and not by any means the least, is the limited promotion open to bandsmen. The educational abilities and the intelligence required to make a skilled musician are the same as those required by the non-commissioned officer. A youth who joins the band sees his comrade, without superior ability, who remains in the ranks, rise gradually to non-commissioned rank, perhaps in six or seven years to colour-sergeant, with the prospects of further promotion to a warrant or to a commission. The bandsman's prospects are limited to the chance of promotion to band sergeant or band corporal. He becomes dissatisfied, and either takes his discharge or commits a military offence to obtain relegation to the ranks; and so the band loses a trained musician. It may be suggested that Kneller Hall opens up prospects for Army bandsmen, but the proportion of bandmasters to the number of men and boys who enter bands is very small.

I see no remedy for this state of affairs, but I know from experience that the trouble is a real one. It takes three to five years to make a useful bandsman. I have heard it remarked, "What's a bandsman more than any other soldier?" My answer is, "A bandsman is an efficient soldier when soldiers are needed, and a musician in addition."

The King's Regulations stipulate that the non-commissioned officers and men of regimental bands shall be effective

soldiers, perfectly trained and liable to serve in the ranks. In addition they are trained as stretcher bearers and in "first-aid." What economy either in men or money would then be effected by the substitution of stationary divisional bands for the present regimental bands? The present regimental bandsmen would become divisional bandsmen. Their places as stretcher bearers with their battalions on service would be taken by men from the ranks, and the fighting line would be correspondingly reduced in strength.

As for the bands themselves, it would be many years before, say, the 1st Aldershot Divisional Band had the same pride in its existence as the existing band of any battalion, with its share of regimental tradition and its pride in everything appertaining to the regiment.

Reliefs with bands at stations abroad would present difficulties similar to those at present experienced with the Royal Garrison Artillery bands, only increased manifold; while, instead of officers and men being given more opportunities for enjoying the band, I venture to suggest that—so far as regiments themselves would be concerned—bands might just as well be non-existent.

It is at most Colonial stations and in India that regimental bands more strikingly evidence their value.

Those of you who have experienced Indian summers at Dinapore, Allahabad, Jhansi, Cawnpore, and similar stations, with the thermometer, in the shade, hovering at the three-figure mark for at least two or three months of the year, will appreciate the enlivenment of the "Long, Long, Indian Day," when the regimental band at the station bandstand or in the regimental gardens towards the close of day, discoursed the latest music from home. The band performances vary the dreary monotony of cantonment life and help to dispel the depression consequent thereon.

Their effect upon the general health and tone of the troops is incalculable.

During epidemics of cholera or fever I have known funerals so frequent that the attendance of the band has been dispensed with. Instead, daily programmes of light and lively music have acted as a wholesome tonic to the community, and in many cases have helped to restrain the men from indulgence in drink and other excesses.

Again, the services of a band for amusement and relaxation at stations where the troops are entirely or almost entirely dependent upon themselves, are invaluable. Dances, concerts, theatrical performances and entertainments of every description are practically dependent upon the band for their success, while cricket, football, polo and gymkhanas owe much to the assistance of regimental bands. Church services are in many stations dependent upon bands for the musical portion of the service.

It may be asked, "But what benefit accrues to the State by the use of the band in these circumstances?"

I leave that question to be answered by the general and medical officers responsible for the physical and mental efficiency of the troops.

In the *Illustrated London News* of 3rd March, 1855, there is a picture of a French band playing in the camp before Sebastopol, and the text accompanying the engraving reads:—

> "The French have shown their superiority to the English in the attention they have paid to the maintenance of their military bands, as in everything else. While the English camp has been for months without any attempt to cheer the hearts of the men with inspiriting martial airs, our more mercurial neighbours have kept up the regular practice of the bands, which has had *an excellent effect upon the soldiers.*"

In my own experience during the operations in Upper Burma between 1886 and 1888, the bandsmen had to discard their instruments and do duty in the ranks. We still, however, maintained the band and practised when opportunity offered. It has frequently happened that, after returning to camp from expeditions against dacoits extending over a week or ten days, bandsmen have been called upon to take part in a concert or entertainment to cheer their comrades in camp, and have willingly given their services.

At Meiktila an incident occurred which I think worth recording. There had been trouble with a certain influential Boh, one Myat Mohun, and his followers. The Boh and his chief supporters were invited to Meiktila to discuss the question of peace with the late Sir William Lockhart. For this occasion I had made a special arrangement of the Burmese National Anthem, which I had heard on one or two occasions played by King Theebaw's Court Band from Mandalay. Whether the music soothed the savage breast or not I cannot say, but the fact remains that Myat Mohun accepted the proffered terms and dacoities ceased in the district from that time forward. The Boh appreciated the band, and I was told afterwards that while the big drummer, the cymbal player and the side drummer gave him every satisfaction, he failed to see the use of the "stick-wagger"—myself.

An old colleague, now serving at the Duke of York's School, who had a long Indian experience, and who served through both phases of the Afghan war of 1878-80, in recounting his experiences, has told me, that though the band of his regiment—the 67th, now the 2nd Battalion Hampshire Regiment—were returned to the ranks on leaving Kohat for the Kurram, they managed to retain their instruments and a certain amount of music. The bandsmen did double duty during the campaign, and when, after the Cavagnari massacre, the force eventually reached Kabul, it was with colours flying and band

playing that the regiment marched into the city. Then, while cantoned in Kabul, the band, though still doing duty in the ranks, kept entertainments going, played at sports, assisted at church services, and generally livened the force. He also instanced the services of the band in a cholera epidemic at Allahabad in 1891, when, for five months, his battalion was in cholera camp 40 miles from cantonments and ten miles from the line of rail.

I have no doubt but that similar experiences must be common to those who have done duty at foreign stations, and I think it may safely be said that even if a regimental band is not exactly indispensable, it is a very valuable asset. To those who depreciate regimental bands, I would venture to suggest that without them, military life in many stations would be spiritless and dreary. I have on one or two occasions met at stations abroad, batteries of artillery which have organized and maintained small battery bands, entirely supported by the officers, non-commissioned officers and men. These batteries would not have expended time and money unless they obtained compensating results.

As regards the band personnel I must also claim that in most units they take a forward place in all games. As a rule the band team more than holds its own at shooting matches, cricket, football, etc., while regimental teams generally include one or more representatives from the band.

The usefulness of regimental bands from a recruiting point of view is another important factor.

In this connection I quote from a letter from an old friend, at one time bandmaster of the Royal Horse Artillery Band at Woolwich.

> "Captain McCrea, Royal Artillery, who was on the recruiting service at Newcastle-on-Tyne during the Crimean war applied for permission for the services of the Royal Artillery Band, which was fulfilling an engagement in that town, to be utilized in the interests of recruiting. Permission having been granted, the band played through the streets of Newcastle. Halting in the principal streets, the sergeant held forth on the advantages of joining the Royal Artillery, and the privilege of marching behind such a band as they had just heard. This had the desired effect, and recruits in plenty were forthcoming."

III.—VALUE OF MILITARY BANDS TO THE PUBLIC.

The high appreciation of our regimental bands is, so far as the general public is concerned, exemplified by the many calls upon their services, made by municipalities and corporations for performances, especially during the summer months.

It is no uncommon thing for bands to play to audiences of 5,000 or 10,000 people in the parks of provincial towns. Local brass bands are unable to equal our standards, and the public prefer the better music of the military bands.

We have some of the finest orchestras in the world in London, but their fine performances can only be enjoyed by those who can afford to pay to hear them. To the poorer members of society the high-class concert hall and the opera house are closed. The performances of regimental bands in public places are their only opportunities of making acquaintance with much that is best in music.

In India and in many of the Dominions and Dependencies it is practically impossible to obtain a knowledge of good music and musical progress except through the agency of regimental bands. The regimental bands of the Army have done more to raise the standard of musical taste in this country, in India and our Colonies, than all the orchestras put together.

It is surprising how the popularity of the regimental bands has increased during the past 25 years, and there is a marked advance in the class of music played. True it is, that most of the music consists mainly of arrangements of the great masters and others, but this is in a large measure due to the fact that composers have not written directly for military bands. Much has been written and said on this subject. In my course of three lectures at the Royal United Service Institution and the Royal Academy of Music, I dwelt strongly on the subject, and I went so far as to say that if the British composer would take the matter in hand, I, for one, would be glad and willing to give all the assistance possible, by having the compositions tested and rehearsed.

I think the reason this matter does not receive the attention it merits is that scoring for military bands is not taught in our great musical institutions. Military bands have frequently been attacked in a few of the London newspapers for playing music that has been arranged for them from orchestral scores. I venture to say, that much of this class of music improves by being played on a good military band. If the music is well arranged, well balanced, good proportions of tone colour maintained, and artistically and intelligently rendered, then I think there is little else to be desired. The carping critic will no doubt say "It is all very well, but I miss the strings," and generally condemn the performance of such works by military bands, who, in his opinion, should be restricted to the music that is written for them. The same might be said of pieces written specially for the pianoforte or organ and arranged or transcribed for the orchestra, and *vice versa*.

A young composer should realize that the military band is one of the best means by which his music can—and in many cases does—become known. It offers him one of the best and most profitable markets, and in many cases it is practically the only way in which his name and work will become known, as it frequently happens that his orchestral compositions are played, as such, not more than once or twice a year, and often not that.

A matter largely affecting the efficiency of regimental bands is the endeavour to maintain a string band in addition to the wind band. I cannot but think it a pity that so much valuable time is expended on the former, when the majority of bands have but little time at their disposal even for the practice of the latter, which is the one paid for out of public funds.

To be a proficient performer on the violin, viola, or 'cello, one has to begin at an early age and devote hours daily to study and practice. Any time devoted to the study of these instruments must necessarily be at the expense of the study and practice of the wind instruments.

There are very few army musicians who are capable of holding their own in civil life in a really good orchestra with one of the stringed instruments I have named. It is therefore to be regretted that time should be expended on attempting to maintain string bands at even a moderate standard. It may be said that these string bands are formed with a view to providing an orchestra to play at regimental entertainments, but my experience has shown me that all that is required can be arranged more satisfactorily with a *good wind band,* allowing for the addition of a string bass or two and a piano if necessary.

A good wind band can play quite as softly and effectively as a string band. I speak from a long and varied experience in India and in South Africa. In India the band I was in charge of—that of the Queen's Regiment—provided the orchestra for performances of "The Mikado," "Dorothy," "Pinafore," and works of a similar character. The instruments used were all of the wind family, excepting a string bass and a piano.

Of recent years it has been a common custom for military bands to accompany vocalists at many London and provincial concerts. This is a test in itself for a wind band. I am thoroughly convinced that bands generally would be greatly improved if all available time and attention were concentrated on the military or wind band. It is far better to have one really first-class band than to have a moderately good string band and an indifferent wind band. It is well known in the Army that where a string band exists the military band suffers, and sometimes both.

I remember only a few years ago a celebrated military string band was unfavourably criticized in the public press regarding the inferior condition of its wind band. It is almost an impossibility to maintain both at a high standard of excellence.

I know from personal experience also that the expense of maintaining the two bands in battalions of the line is great. I served with a regiment that organized a string band. It had at the time a very excellent wind or military band, but so much attention had to be devoted to the strings that in a few years the wind band depreciated. This, together with the expense involved in keeping two bands going, caused the officers to give up the string band.

Civilian musicians cannot find time to attain a high standard of excellence as double-handed players, *i.e.*, to play well on a string in addition to a wind instrument, consequently the military musician, who has less time at his disposal, cannot well hope to do so.

The military wind band is the only one recognized by the authorities.

It is my candid opinion that it is not sound policy or fair to the bandsman to compel him to devote valuable time to the learning of one of the string instruments I have named, upon which he is never likely to excel; rather should he be encouraged to practice so as to become efficient upon a single wind instrument, so that when the time arrives for him to leave the service he will be able to hold his own with other musicians in the professional ranks in civil life.

In these days of keen competition, it is not sufficient to be a *moderate* performer upon one or more instruments; a bandsman so trained is, in my opinion, neither properly trained nor fairly treated, as he finds to his cost when he enters civil life and has to face this competition.

For quite a considerable period during the last century, the military or regimental bands provided the wind instrumentalists at most of the theatres in London, and the whole of the wind department of the orchestra at the Royal Italian Opera at one period consisted of Army musicians.

As evidence of the power of music upon people in a mass, I should like to record my experience of the tour which the Coldstream Guards Band made in Canada in the year 1903.

The enthusiasm displayed by the people in the various cities and towns was something to remember. From the Imperial point of view it was more than a success, it was a veritable triumph. In out-of-the-way towns where a military band was almost unknown, and where the programmes were more simple and patriotic than classical, it was no uncommon sight to see people moved to tears by the strains of some beautiful old English, Irish, Scotch or Welsh melody. The effect of "Home, Sweet Home," "Oft in the Stilly Night," "Auld Robin Gray," and such like melodies, were such that I felt not only the band but also the audience under the control of my bâton. Whole audiences would sometimes stand up in the middle of a programme and demand the "National Anthem" or "Rule Britannia." Such was the enthusiasm and loyalty of the Canadian people. This, and much more, might be said to prove the effect and power of popular and patriotic music when well played. During the short visit of the band to France a few years ago, the warm and enthusiastic reception we experienced at the hands of the populace was astonishing, and doubtless our efforts in a small way did something towards strengthening the *Entente Cordiale* which so happily exists between the two countries.

In our service regimental bands no longer accompany their battalions as bands into the field, but the following extract from a report of the fighting in the early stage of the war in Turkey shows that in some cases bands are still to be found on the battlefield.

> "To the strains of the 'Slivinitza March,' infantry regiment after infantry regiment of the Bulgarian Army advanced with bayonets at the charge."

Had present-day regulations obtained a hundred-and-twenty years ago, the West Yorkshire Regiment would not have had the unique distinction of using the old French revolutionary air, "*Ça Ira*," as their regimental march.

The circumstances quoted from the *Romance of Regimental Marches* are as follows:—

> "When on May 23rd, 1793, the allied Forces stormed the French camp at Famars, the 14th Regiment, finding their work a little too hot for them, began to fall back, and the prospects of the assailants was but gloomy. The moment was one of supreme gravity. The English were losing courage, while the Frenchmen were gaining it, and were keeping up their spirits with the music of the '*Ça Ira.*' Suddenly a brilliant thought entered the mind of the Colonel of the 14th. He dashed to the front once more, commanded his band to strike up the revolutionary air, shouted, 'Come on lads, and we'll beat 'em to their own damned tune,' and headed his regiment to a final and triumphant assault. From that day to this the battalions of the West Yorkshire Regiment have played '*Ça Ira*' as their quickstep."

IV.—CONCLUSION.

It is calculated that in European armies there are now about 1,500 bands, and taking an average of 40 men per band the numbers for the whole work out at 60,000—quite an army in itself.

It will be remembered that for purposes of economy the Government of France some years ago abolished their bands. This innovation was so unpopular both with the Army and the people, that the bands were soon reinstated.

All nations admit the necessity and utility of military or wind bands, and many have paid great attention to the artistic side of their use.

My lord, ladies and gentlemen, I have to thank you for the attention you have given me this afternoon. I crave your consideration should you deem that I have claimed more for regimental bands than you can admit, but after a lifetime spent in the service of military bands, it is only natural that my feelings and sympathies should be strongly in their favour.

I now propose to afford you an opportunity of comparing the military band of to-day with that of about 120 years ago.

The Rev. F. W. Galpin, M.A., Vicar of Hatfield, has very kindly placed the following instruments of 1790 at my dis-

posal, and Messrs. Hawkes & Sons have kindly put them in order :—

Two oboes.
Two clarinets in C.
Two bassoons.
Two long model trumpets in D or C.
Two hand horns in D or C.
Two serpents in C.
One bass horn in C.

I have also been fortunate enough to obtain the co-operation of the Royal Garrison Artillery Band from Dover, under the able leadership of Mr. P. Battishill.

This band, with the old-time instruments, will give you a rendering of a few pieces, which will afterwards be repeated by my own band, as an example of the military band of to-day. I hope by this practical demonstration to enable you to realize the great advance that has been made in the instruments suitable for military bands, and consequently in range of music for their disposal.

To avoid any error, I must explain that the comparison is between the instruments and their scope, not between the bands. Indeed, such is the system of the band training of to-day, that I venture to assert that under Mr. Battishill, the Royal Garrison Artillery Band will give us a better and more carefully finished rendering than would have been possible with the same instruments 120 years ago.

The programme of music given in the Synopsis was then performed, the first four pieces being rendered, first by the band of the Coldstream Guards, and then by the band of the R.G.A., Dover, with the instruments in use 120 years ago.

DISCUSSION.

Sir Alexander Mackenzie (Principal of the Royal Academy of Music) : Lord Roberts, ladies and gentlemen, how a peaceful lamb of a musician like myself feels among such lion-like surroundings I leave to your imagination. I am present because I deem it a privilege to thank the Lecturer for his most able paper on a subject upon which he is perhaps of all others best fitted to speak, by reason of long experience, not only of military service, but in the service of music. I came to the meeting in search of information, and I certainly have not been disappointed. It was high time for some expert to give an historical exhibition of the early beginnings and the growth of British military music, because, as you have heard in following the lecture, it has developed from its initial purposes and uses far beyond its original intentions, and has, in course of time, taken its place as a most active factor in the progress of music—a factor to be reckoned with and recognized to a much greater extent than, may be, some of us civilian musicians who are working to the same end and to the same purpose have hitherto done. By the improvements and refinements which our regimental bands have gradually undergone, their executive powers have attained a standard of perfection which deserves the

highest praise and admiration. Indeed, in some special cases—I need not specify them—the standard of executive ability touches a point which is perfectly astounding. But that advance has brought something much more valuable and gratifying to us, namely, the extraordinary selection of high-class music which has not only been made possible, but which, to the great credit of the bandmasters, has been taken full advantage of. These programmes now contain much of the very best, worthiest, and most difficult pieces by the great composers of all nationalities. Some years ago—perhaps not so very many—the same compliment could hardly have been paid so honestly and sincerely as I can offer it now.

EDUCATIONAL INFLUENCE OF ARMY BANDS.

I do not know whether the military authorities will appreciate so fully as we musicians do, the fact that the army bands have now achieved a foremost position, not as mere contributors to amusement or enjoyment, but—and I say it freely—as valuable popular educators. Their influence is probably more practically useful and effective in that respect than any other means that could be devised for bringing good music to the ears of a huge mass of people, who otherwise would never have learned to love it, as assuredly they do when they get a chance of hearing it. We owe a great deal more of the immense improvement in the public taste and understanding of the art, all over the country, to the army bands than has ever been acknowledged or given credit for. It is so very obvious that I will not dwell upon it further except to thank those in command of those admirable bands for marching with the times and for the results of their by no means easily accomplished labours—for they have had great difficulties to contend with, which we civilians know nothing about.

Interested as I am in all that appertains to musical education, I may say that I have had the pleasure of accepting an annual invitation to a sister musical school, I mean that of Kneller Hall, and I invariably come away very much impressed by the successful efforts made by the authorities and the excellent work done by the students in that capital institution. Dr. Rogan said something to the effect that young composers do not write sufficiently for military bands and that our academies and colleges might do something more towards that end. I thoroughly agree with him, but my excuse is this, that we are asked and are already doing so much that I daresay that worthy object has been somewhat neglected. But I believe it will come. In any case I shall be only too happy to accept Dr. Rogan's kind offer to let him rehearse with his band any piece I may attempt.

To give you an example of what I think of the military bands, I will tell you that on the occasion of the International Musical Congress, only a couple of years ago, we were anxious to show every department of English music—in fact, our English musical life—at its very best, and I am happy to say that the Coldstream Guards were good enough to come and give us a remarkable International programme, about which much genuinely-meant praise was said at the time, and written afterwards, by our distinguished guests in their foreign newspapers and magazines. Indeed, I am not at all sure that Dr. Rogan did not come off very much better than some of us others. I believe that his was the only particular jacket that had no holes picked in it; but I need not inform you that in my profession we know no such thing as jealousy, and therefore we have forgiven him long ago. Clearly, then, ours may vie with the bands of any country, and, I assure you, we are proud of them. I will go further, and

say that it would be nothing short of a disaster if anything were to happen to disturb or check the splendid work they are so efficiently doing.

The Chairman, Field-Marshal the Earl Roberts, V.C., K.P., G.C.B., O.M., etc.: Ladies and gentlemen, it is now my pleasing duty to propose a vote of thanks to Lieutenant Rogan. I am sure you must all have been pleased with the music which he has given us this afternoon. I have known Lieutenant Rogan for a great many years. As the bandmaster of the Queen's 2nd Foot he often used to delight us in India and Burma, and I remember how well everybody spoke of the band under his direction. He has been a soldier and has borne his Sovereign's uniform for nearly 45 years. He has risen from the position of band-boy to be the bandmaster of the Coldstream Guards. I am proud to call him an Irishman. I believe he is known as a "Tipperary Highlander" from the fact that, while his father was an Irishman, his mother was a Scotch woman. I think he is a true Irishman and has shown us what a true Irishman can do as a musician. Dr. Rogan was unanimously elected a member of the Royal Academy of Music in 1907. He was chosen by the Senate of the University of Toronto for the degree of Doctor of Music, this being the first occasion in the history of the British Army that a bandmaster was paid so high an honour. The fact that the premier University beyond the seas thought fit to bestow this dignity upon Dr. Rogan is a compliment not only to himself and the Household Brigade, but also to the Imperial forces generally.

THE VALUE OF REGIMENTAL BANDS.

I should like to say how warmly I support all that Lieutenant Rogan has said about regimental bands. I can speak from my own experience of what use a regimental band is to a regiment. I have seen men weary, worn out with fatigue, hot and smothered with dust, brighten up the moment they heard the tap of the drum, indicating that the band was going to play a lively quickstep. It has the greatest effect on the men in camp and in quarters and I should deeply regret any arrangement being made on the score of economy by which the bands should be taken from regiments. It would, I feel, certainly be a very false step.

Before I put the vote of thanks to Lieutenant Rogan, I should like to thank Mr. Battishill, the bandmaster of the Royal Garrison Artillery band at Dover, for the trouble he has taken in giving us the music on his old instruments. There was, I understand, some difficulty in finding a bandmaster and a band willing to take up the duty, but Mr. Battishill came forward and his band took up the matter in their own way and in a way that I am glad to say Royal Artillery men always will take up. As a Royal Artillery man myself, I congratulate Mr. Battishill and his band for the excellent music they have given us. The instruments may be somewhat primitive, but they were well played, and anyhow they showed us what an advance has been made in a hundred years in the playing of the same tune.

Although the point does not arise on this particular occasion, I should also like to take this opportunity of saying how much indebted the Royal United Service Institution is to Colonel Leetham. But for Colonel Leetham we should not have had this pleasant afternoon. He has helped the Royal United Service Institution in a way, I think, it has never been helped before, and, speaking personally, I offer him my best thanks for what he is doing for it.

THE RAILWAY SYSTEMS OF WEST AFRICA.

By CAPTAIN H. O. MANCE, D.S.O., R.E.

On Wednesday, 22nd January, 1913, at 3 p.m.

SIR CLEMENT L. HILL, K.C.B., K.C.M.G., M.P., in the Chair.

Synopsis of Lecture.

INTRODUCTORY. Objects of Railway Construction in West Africa: Effective Occupation—Strategic—Development of External Commerce—Administration—Local. GENERAL FACTORS WHICH GOVERN LOCATION OF RAILWAYS IN WEST AFRICA: Ports—Early Profit on Working—Natural Resources—Competition—Physical Configuration—Political Frontiers—Cross-Country Lines. EXISTING AND PROPOSED FRENCH RAILWAYS: Existing French Railways—French Programme of Main Line Construction—Consideration of Thiès-Kayes Line—Liberia. GERMAN RAILWAYS: Togoland—Cameroons. SIERRA LEONE AND THE GOLD COAST: Sierra Leone—Gold Coast. NIGERIA: Existing Railways—Extensions in Southern Nigeria—Eastern Trunk Line—Cross-Country Line in Northern Nigeria—Western Trunk Line—Possible Extension to Zindar. STATISTICS ILLUSTRATING THE RESULTS OF WORKING OF WEST AFRICAN RAILWAYS. FUTURE CONNECTIONS BETWEEN INTERNATIONAL SYSTEMS: Suggested Trans-African Railway—Standard Gauges of West Africa. CONCLUSION. APPENDIX I: Railway Extensions and Harbour Improvements Proposed for Execution under Loan of £6,000,000 raised by French West Africa. APPENDIX II: Approximate Dates and Cost of Construction and Results of Working of West African Railways. POPULATION MAP: pp. 184 and 185. GENERAL MAP: Facing page 194.

THE CHAIRMAN: Ladies and gentlemen, before we proceed to any other business, I should like to read you a letter which has been received from Mr. Harcourt, who asked me to apologize for his absence to-day, and to explain the very great interest which he takes in this matter:

"Dear Sir Clement Hill, I see that you are to take the chair at Captain Mance's lecture on 'The Railway Systems of West Africa.' at three o'clock on Wednesday, 22nd. I should be glad if you would mention, when you do so, that I should certainly have attended the lecture myself, but for the fact that, on that day, I am obliged to be in Lancashire. As you know, I am especially interested in the railways of our Tropical Colonies, and have done not a little myself to encourage and prolong them.

Yours very sincerely,
L. HARCOURT."

That, as you know, is perfectly true.

I have also had a letter from Mr. Jonathan Holt, of John Holt and Company, as follows:—

"I much regret being unable to be present to hear the lecture from Captain H. O. Mance, upon Railways in West Africa. I am sure what he will have to say on this subject will be most interesting and instructive. During the time Captain Mance has been in Northern Nigeria, in addition to his own particular work, he has taken an extraordinary amount of interest in various matters appertaining to the trade, and to the development of the exports from that country. He has gone to endless trouble, no doubt at considerable inconvenience to himself, to give the merchants and traders much valuable information. I am only sorry that, if only to show my appreciation of Captain Mance and what he has done, I cannot be present on Wednesday afternoon.

I am, dear Sir,
Yours faithfully,
JONATHAN HOLT."

I have now great pleasure in introducing to you Captain Mance, who will read the paper. Captain Mance is himself in the Royal Engineers, and has the Distinguished Service Order, and he is the son of a very well-known man, Sir Henry Mance, who was the inventor of the heliograph. Captain Mance has also been through the South African war as Staff Officer to the Assistant-Director of Railways, and was Deputy-Assistant Director of Railways and Armoured Trains on the Kimberley line. He was also employed in the construction of the Bara-Kano Railway from 1908 to 1911, and so he is thoroughly qualified to read us a paper on that subject, and I am certain we may look forward to having a very interesting lecture, and, I hope, discussion to follow. I will now ask Captain Mance to read his paper.

THE LECTURER: Sir Clement Hill, ladies and gentlemen,

The present time is a critical one in the railway development of West Africa. European nations are realizing the immense importance of tropical possessions. Everyone has heard of rubber and minerals, especially gold and tin, and even of cotton as being articles obtained from West Africa, but what is equally important, though less generally known, is our dependence on the tropics for increasing supplies of the oil products ultilized for edible purposes, for soap, and for candles. The delimitation of international boundaries and pacification of the country have paved the way for systematic economic development, which can only be obtained by improved means of communication.

The French have taken the lead with a comprehensive scheme aiming at linking together their West African possessions, and one of the first problems of the amalgamated Nigerias will be the framing of a railway policy on which the economic future of this rich possession will largely depend. To the East

again the Germans in the Cameroons, with the territory recently ceded by the French, are confronted with the necessity of a co-ordinated railway policy.

The moment is therefore opportune to review the situation generally, in the hope that the various factors will present themselves in their proper proportion. I propose to consider, firstly, the general objects of railway construction in West Africa; secondly, the principal factors which influence the choice of the lines of railway development; and then to survey what has already been done, and consider some of the problems which still remain to be solved. The opinions advanced in this lecture are personal views and bear no official authority. It is not claimed that they are original. Some of them were first advanced years ago.

I am indebted to a large number of sources for the information embodied in this paper, and more particularly to published official reports relating to British and French colonies, to *l'Afrique Française, La Dépêche Coloniale, Les Chemins de Fer Coloniaux Français*, by Godfernaux, and the *Deutscher Kolonialatlas*.

OBJECTS OF RAILWAY CONSTRUCTION IN WEST AFRICA.

EFFECTIVE OCCUPATION.—One of the first objects of railway construction in West Africa, or for the matter of that in any of our more recently acquired tropical dependencies, is to attain effective occupation. The Uganda Railway was built primarily to stop the slave trade. The Soudan Railway was undertaken to aid in the reconquest of that country. The Senegal-Niger railway was planned to secure for France the basin of the Upper Niger. This method of occupation is far more effective than military conquest. It possesses, however, the disadvantage that the information available is not usually sufficient to enable the railway to be located for the best future welfare of the country. The consideration of effective occupation is therefore in itself a temporary one.

STRATEGIC.—After the pacification of a colony there may remain strategic reasons for the construction of railways, which would play an important part in the event of a Mahommedan rising emanating from one of the uncontrolled regions of North Central Africa. Any general scheme of railway development based on economic grounds will meet such requirements; and these will at most only influence the order in which the component projects are carried out.

As regards international hostilities, it is not likely that problematical strategic considerations will be allowed to influence a railway policy upon which success in international commercial rivalry may depend.

DEVELOPMENT OF EXTERNAL COMMERCE.—A little reflection will show that the development of external commerce should

be the paramount object of railway construction, whether looked at from the point of view of affording the inhabitants a fruitful field for energies released from less productive occupations by the advent of "*Pax Britannica*" or its Continental equivalent; or from the point of view of European trading firms, and manufacturers of goods for native markets who are dependent on cheap transport for the extension of trade; or from the standpoint of the administration, and, above all, the Treasury, out of whose clutches it is the desire of every self-respecting colony to extricate itself by dispensing with a grant-in-aid. West Africa has enormous resources, of which, in many cases, a microscopic portion supplies the local requirements. The prosperity of these countries prior to European occupation varied with the extent of their trade with neighbouring countries, carried on, as it was, under dangers and difficulties. Further increase in prosperity can chiefly be obtained by widening the markets for the products of the country, and improving the efficiency of production, both of which objects are effected by extending the means of transport.

ADMINISTRATION.—Administrative reasons, such as intercommunication between the different arteries serving outlying portions of a dependency, or the necessity for access to healthy stations, are permanent reasons, the relative importance of which, compared with economic development, will vary in different localities, and with the state of progress which has been reached.

LOCAL.—Finally, it is possible that railways may be specially built for such local purposes as to transport labourers and food from populous areas to mining centres, to connect the more fruitful food-producing countries with areas liable to famine, and to distribute local coal in competition with imported supplies. Internal native trade is more likely to be modified by than to influence railway construction.

Thus we are led to approach the problem of railway location primarily with the object of fostering external commerce while giving due regard to administrative facilities.

GENERAL FACTORS WHICH GOVERN LOCATION OF RAILWAYS IN WEST AFRICA.

PORTS.—The first practical consideration which at once presents itself is the question of *ports*. West Africa affords a striking example of what can be done in the way of trade on a surf-bound coast without ports, but it is easily seen that only the more lucrative forms of trade can survive the inconveniences and extra cost, both direct and indirect, involved by the primitive method of conveying cargo between the shore and ocean steamers by surf boats, which in bad weather may have to suspend operations. It will, therefore, pay to divert railways considerable distances from their shortest route to the coast to

obtain the greater capacity, reliability, and cheapness afforded to trade by good, or better, ports.

EARLY PROFIT ON WORKING.—No administration is likely to construct a railway without ensuring, as far as possible, that the immediate return will make the undertaking pay its way from the commencement. In West Africa, with its ubiquitous natural resources and possibilities, the limiting factor in the development which can be brought about by improved communications is the density of population, and it will therefore usually pay quickest to build railways in the more populous districts. The effects of long periods of slave raiding have, however, altered the distribution of population in a striking degree, so that at present, population density cannot be regarded as a reliable index to the natural resources of the various districts to the extent that would be expected in a more settled country; and in the absence of special influences, it will take several generations to bring these factors into close relation. It must also be borne in mind when studying population charts, that areas suitable for growing native foodstuffs of low commercial value may support a large population, independently of transport facilities, for the lack of which a district richer in sylvan and mineral wealth, but less suited for producing food staples, may remain comparatively uninhabited.

A portion of a population density chart of West Africa, compiled from the latest available data, has been reproduced on pages 184, 185. The data cannot be regarded as final, and the distribution shown will doubtless be considerably modified in the light of further knowledge of the country. Such as they are, however, these figures of population density are well worth study by those interested in West African problems. The depopulated area due to slave-raiding will be seen extending from east to west, between the Hausa States and the coast provinces of Nigeria, and still further to the west in the Northern Territories of the Gold Coast and the Ivory Coast. The scale on the chart shows the density, expressed in the number of inhabitants per square kilometre. This multiplied by two-and-a-half will give, approximately, the number per square mile. The densest areas shown are those with over 100 per square mile, but there are some portions of Southern Nigeria which are far more thickly populated. In the district of Ikot Ekpene the population is estimated at 430 per square mile. It will be noted that Nigeria is by far the most densely populated part of West Africa.

NATURAL RESOURCES.—Coupled, therefore, with the knowledge of the present distribution of population, it is most important to take stock of potential riches, sylvan, agricultural, and mineral, of the country it is proposed to develop. Perhaps it is for this purpose that our Continental neighbours in West

Africa usually send a scientific mission to report on the districts it is contemplated developing by railways.

So far as we have got, our general scheme of railway development will consist of one or more railway systems starting from the best ports and disposed to drain, in the most effective manner, the areas endowed with the greatest resources, whether developed or potential, precedence being given to the more densely populated areas in view of the importance of each portion of the scheme paying its way as it is constructed.

COMPETITION.—How far this latter consideration may be allowed to weigh, will depend a good deal on the point next to be considered, namely, the possibility of competition with existing or future railway systems or water transport. This is not so important in cases where the opposition railway is controlled by the same administration, but where, for example, the railways of two adjoining European Powers are likely to compete for the trade of an important district, everything may have to give way to obtain the cheapest outlet for through traffic. It is always possible to serve rich non-competitive areas, lying off the direct route, by branch lines.

The products of West Africa have, moreover, to compete in European markets with similar commodities from other origins, and the future prosperity of a colony may lie in commodities, the exploitation of which depends on the cheapness of transport. It may be advanced that a longer line through a richer country can profitably quote lower rates than a more direct line, which cannot reckon on a nucleus of lucrative intermediate traffic; but in the long run, under the stress of competition for a large volume of traffic, assuming equal facilities, rates as a whole will bear relation to the bed rock of working expenses, so that it may well pay to build an unproductive section as part of a general scheme for the best ultimate good of the country.

PHYSICAL CONFIGURATION.—The same considerations which justify a comparatively unremunerative section may make it worth while undertaking a route which is more costly to construct by reason of physical difficulties, in order to attain lower ultimate expenses. The additional expenditure may be devoted to obtaining a shorter line through more difficult country, or to reducing the ruling grade. It is hardly necessary to point out that the added charge on traffic due to interest on increased capital expenditure remains constant, and the extra cost per ton mile therefore becomes less as the traffic increases, so that at a certain stage of development this extra cost is more than covered by the reduction of working expenses. A happy mean in this respect has been attained in Northern Nigeria on the Baro-Kano Railway. Here expenditure was not stinted where necessary to obtain the best possible grade, but in other respects a cheap line was constructed capable of being improved as

traffic increases. This type of line is destined to play an important part in the development of West Africa.

As a general rule, however, it is evident that physical configuration exercises an important influence on the situation of railways.

POLITICAL FRONTIERS.—The weightiest economic considerations may have to give place to the fortuitous disposition of international frontiers. The French had to abandon their original scheme for the line of penetration in French Guinea, as it was found that the most favourable route lay partly within the hinterland allotted to Great Britain. The existence of protective fiscal tariffs may artificially influence the lines of railway development. The case of Sierra Leone and French Guinea may be cited and will be referred to again.

CROSS COUNTRY LINES.—As regards the lines constructed chiefly for administrative purposes, these will be in the nature of cross lines, and will act as feeders to the coast trunk lines. Unless likely to form part of a cross trunk line, deviations from the shortest route will only affect the local area served. It must be remembered when scheming a railway system, that the construction of a connecting link between two systems almost invariably introduces the factor of competition by alternative routes.

EXISTING AND PROPOSED FRENCH RAILWAYS.

EXISTING FRENCH RAILWAYS.—I will now briefly review what has been done in the past. Precedence must be given to the French, who had the honour of starting to build the first railway in West Africa, 15 years ahead of any other nation, and who lead to-day with their West African railway policy.

The port of Dakar has wharves along which ocean steamers can berth. It is becoming an important coaling station for South American lines of steamers, and with the adjoining port of Rufisque, is the present outlet of the French Western Soudan.

The *Dakar—St. Louis* line, 165 miles long, commenced in 1882, completed in 1885, taps the whole of the water-borne trade of the Senegal River, which has no practicable outlet to the ocean by reason of its bad bar.

The *Kayes—Bamako—Koulikoro* Railway, 346 miles long, originally proposed by Faidherbe in 1863, connects the head of navigation on the Senegal River with the head of the longest navigable reach on the Niger. It was commenced in 1881, and, at the cost of many lives, and after many vicissitudes, was finally completed in 1904, securing to the French the basin of the Upper Niger.

It was decided as early as 1878, when a commission was appointed in France to report on the railway development of

French West Africa, that the two above railways should be eventually linked together, and the correctness of this policy has been borne out by the fact that the navigation of the Senegal River to Kayes, though admitting boats with 1,000 tons cargo for a short period of high water, is found to be too uncertain to be relied on as the outlet of the Upper Niger country. A railway is therefore being constructed to link together *Thiès and Kayes*, and thus cut out the Senegal. This line, which will be about 425 miles long, is being constructed from both ends, and has been completed all but about 180 miles.

A line from *Konakri*, a comparatively good port, with a wharf for ocean steamers, was started in 1900, and completed to Karoussa (367 miles) in 1910. It is now being extended a further 40 miles to Kankan, whose importance as a commercial centre may be deduced from the fact that 14 European firms were installed there while yet the railway was hundreds of miles away. Both the Niger from Karoussa (250 miles away) and the Milo from Kankan are navigable for small steamboats to Bamako during the high-river months, and by large canoes all the year round. Feeder roads have been constructed from the railway in the most likely directions for future branch lines.

On the *Ivory Coast* a line 195 miles long has been constructed from Abidjan through the forest belt to Bouaké. Progress was delayed by the native rising early in 1910, when the line was attacked and damaged in places. There is a jetty through the surf at Grand Bassam, and the facilities, which appear to have been very unsatisfactory, have recently been improved. An attempt to form a seaport at Abidjan by joining the lagoon with the ocean failed and had to be abandoned. As a result the railway terminates on a lagoon, over 20 miles from Grand Bassam, its sea-port. One of the suggestions to get over the difficulty is to extend the railway from Abidjan across the lagoon to Port Bouet, and build one or two jetties at the latter place. Another scheme is to improve Grand Bassam and link it by rail with Abidjan *via* Bingerville.

In *Dahomey* a railway 162 miles long exists from Kotonu to Savé, with a branch 20 miles along the coast to Segboroué. A tramway of the same gauge runs from Porto Novo to Sakete, 25 miles long, and now being extended a further 25 miles. Owing to the lack of a harbour at Kotonu, where there is only an iron jetty projecting through the surf, a large proportion of the trade of Porto Novo is sent *via* the coastal lagoons to Lagos for shipment.

FRENCH PROGRAMME OF MAIN LINE CONSTRUCTION.—The Government appears to have organized the collection of information bearing on the extension of railways, and in May, 1911, the Governor-General of French West Africa proceeded on a tour embracing all the colonies under his jurisdiction. On his return a general scheme of railway and harbour development, estimated to cost over 19 millions sterling, in addition to the

funds already voted, was promulgated, to commence which a loan of 150 million francs, or six millions sterling, is being raised. Of this amount £240,000 is allocated to improving the port of Dakar, £120,000 to the port of Konakri, and £40,000 for the survey of and preliminary work on a port on the Ivory Coast. The attached map shows generally the proposed scheme of railways, which is on the lines of one foreshadowed in 1906. Starting from Dakar a main artery will extend *via* Thiès, Kayes, Bamako, Buguni, Boromo, Wagadugu, Fada N'Gurma, Paraku to Kotonu, a distance of about 2,000 miles. From this main artery two lines will extend to the coast, one from Buguni *via* Kankan and Kurussa to Konakri, the other from Boromo *via* Bouaké to Abidjan. Two branches will be built to the Niger. The first from Paraku to Gaya, the head of what may be termed the middle navigable section of the Niger, and the second from Wagadugu to Ansongo at the foot of the longest navigable section of the Niger. It may be mentioned that, in the event of the suggested Trans-African Railway being constructed, to link together Algeria with the Congo Railway system *via* Lake Chad, a branch would be made either from Selet or In Gessan to Ansongo to connect with the French West African system. Kankan will be connected with Dimbokro on the Ivory Coast Railway by a direct line through Beyla and Daloa, and finally there will be a cross line between the Thiès-Kayes and the French Guinea Railway. The portions of this system, which it is intended to carry out by 1918, out of the forthcoming loan, are shown in Appendix 1. The Governor-General, however, will be able to divert expenditure from one line to another, so that it may be possible, for example, for the line to be continued on from Paraku to the Niger, within the next few years. This scheme is only intended to provide for the trunk lines of the future railway system of French West Africa. Branch lines will be built to develop special districts as the need arises.

It will be noted that the existing centres of densest population are tapped as far as possible without deflecting the trunk lines from the shortest routes to the interior.

CONSIDERATION OF THIÈS—KAYES LINE.—The *Thiès—Kayes Railway* was deflected to the southward to tap the rich basin of the Gambia instead of the almost desert hinterland, and to save as much as possible of the trade from being diverted to British channels. A proposal, made in 1907, to go direct from Tamba Counda to Talary, thus shortening the rail journey from the interior by 42 miles, was overruled on the grounds of costing £200,000 more. Possibly the more immediate advantage of the Kayes-Ambidédi section which has just been commenced, influenced the decision. I cannot help thinking that the future will prove that the more direct route would have been best, with a branch 25 miles long from Kayes to Ambidédi if necessary. A scheme has been suggested to build a branch line, 13 miles long, from Guinguineo to Kaolak on the Saloum River, which is

navigable at all times, thereby saving some 90 miles as compared with Dakar. It must be remembered, however, that the Gambia River is already navigable for vessels of 13 ft. draft all the year round to McCarthy's Island, 153 miles from Bathurst, and the depth is now being improved to 15 ft. Nianimaru, some 30 miles below McCarthy's Island, is stated to be accessible at all times by fully-loaded ocean vessels drawing about 20 feet. It is, therefore, not unreasonable to suppose that a short branch line to McCarthy's Island, or, better still, to the vicinity of Nianimaru, might make the Gambia the future commercial outlet of French Western Soudan. The saving in the rail journey to McCarthy's Island as compared with Dakar, would appear to be about 180 miles.

Comparing the Dakar, McCarthy's Island, and Konakri routes: from Bamako to Dakar *via* the Thiès—Kayes route will be 810 miles; from Bamako to Konakri *via* the Niger to Karoussa is 620 miles; or by rail *via* Buguni will be about 660 miles. The rail journey from Bamako to McCarthy's Island will be 630 miles, and, had the short cut to Talary been adopted, might have been 590 miles.

LIBERIA.—In Liberia it is reported that a concession has been granted to a German firm to build a railway from Monrovia to the frontier of French Guinea.

GERMAN RAILWAYS.

TOGOLAND.—Turning to the German colonies, the following lines exist in Togoland: A coast line 28 miles long from Lome to Anecho, completed in 1905; a line from Lome to Agome-Palime 77 miles long, opened in 1907, and a line from Lome to Atakpame, 102 miles long, opened in 1911. A local line northwards from Anecho, or eastwards from Tsewie, is projected to develop the rich oil district north of Anecho. The Agome-Palime line will possibly be extended in the future towards Kpandu. It is proposed, when funds permit, to extend the Atakpame line to the interior to serve Sokode and Bassari, and eventually towards Sansanne Mangu to Tchipowa. Unfortunately Togo possesses no good port, the facilities at Lome consisting of an iron pier, as at Kotonu. This pier was badly damaged by the sea in 1911, but is now repaired.

CAMEROONS.—In the Cameroons the issues are larger, and concern us perhaps more directly. Two railways are being built. The northern line, 100 miles long, from Duala to Ngonsamba, on the lower slopes of the Manenguba mountains, was opened in 1911. The centre line from Duala through Edea is being constructed to Mbalmajo on the river Njong near Widimenge, a distance of 178 miles. Duala is a port comparable with Calabar, and capable of considerable improvement at a slight cost.

There is also a narrow gauge private tramway from Victoria to Soppo, 27 miles long, serving the headquarters of the administration at Buea.

A special mission is now investigating the country with a view to deciding on the best direction for the extension of the northern line. The alternatives appear to be the route approximately shown on the map, and a line more to the east *via* Joko, Tibati, and Ngaundere. It is proposed to carry this line eventually to Garua, and even to Kusseri, as the Germans seem convinced that the Benue River will not suffice as the outlet for their northern provinces. Captain Mercier, in an article published in November, 1911, in *L'Afrique Française*, arrived at an opposite conclusion, and recommended connecting the Benue and the Logone rivers by a railway to serve the French Chad and Shari territory. It is perhaps worth going into the matter for ourselves.

The Benue is navigable up to Yola for vessels of 200 tons cargo capacity for three months in the year, and during this period the conveyance of traffic to Garua can be guaranteed by lessening the amount of cargo or using slightly smaller vessels from Yola onwards. Assuming that the Benue fleet is based on Lokoja, to which point boats containing 1,000 tons of cargo have access during the Benue flood season, each vessel can only be counted on to make four return journeys to Yola in the season. Now the whole of the Government fleet, excluding the smaller vessels, has a cargo capacity of about 1,800 tons, representing some 600 tons weight of paying cargo, so that in the three months the Government fleet could at most, if fully employed, bring down 2,400 tons of produce a year, or if the faster vessels made five trips, say, 2,700 tons weight. I doubt if the whole of the existing fleets on the Niger could bring down 7,000 tons a year from Yola and beyond; but nothing like this amount of shipping will be available, as it is obviously out of the question to have special vessels for the Benue traffic only—laying them up for most of the year—and it will only be possible to withdraw vessels from the Niger service in the case of river carriers who command sufficient business to justify chartering vessels carrying 1,000 tons, known as "branch boats," for the Niger, during high-water, thus releasing the sternwheelers for the Benue. Under the circumstances, apart from the disadvantage of the short period the river is open every year, the Benue could not cope with the tonnage which may reasonably be expected in the future from the French and German sources, in addition to that originating in Northern Nigeria. Moreover, the distance by river from Garua to Forcados is about 870 miles, and a rate of £6 per ton was charged to the French for this distance. A railway from Garua to Duala might possibly not exceed 500 miles, so that an average rate of 3d. per ton mile would successfully compete with the river. Under the circumstances any road or railway between the Logone and Benue would feed a line

to Duala in preference to the River Benue. The railway would also develop the country passed through, and greatly facilitate the administration of the Cameroons. Therefore it will be built and will tap Yola and Eastern Bornu in the absence of a competing line.

The centre line from Duala to Mbalmajo was chosen to develop the central part of the Cameroons in preference to a line from Kribi to Ebolowa, advocated by the merchants at Kribi. The principal objection to Kribi appears to be that it will never be a good port. From Mbalmajo the Njong is navigable all the year to Abong Mbang, only 30 miles from the Dume River, which at high water is navigable downwards for 125 miles to within about 100 miles of Nola on the navigable Sanga. An extension of the centre line *via* Gamane and Kunde to the navigable Logone, or a branch from the northern line to the Logone, especially if the eastern route is chosen, might capture the trade of French Shari territory more effectively than could be done by a line from the Logone to Garua.

An alternative scheme to the Kribi—Ebolowa line is a railway from Kampo eastwards to compete with the suggested French line from Libreville to Wesso.

SIERRA LEONE AND THE GOLD COAST.

SIERRA LEONE.—Turning now to the British colonies, we have in Sierra Leone a splendid harbour at Freetown, which will probably some day be provided with wharves for berthing ocean steamers, and a trunk line of 2 ft. 6 in. gauge from Freetown to Pendembu, 228 miles. There is a branch line from Boia junction to Roruks, which is being extended across the Rokelle River towards Makene, a total distance of about 90 miles, about half of which has been completed. Looking at the map, the main line would appear to tap a portion of French Guinea lying east of Sierra Leone and north of Liberia, but a heavy duty is placed on imports into French Guinea through a foreign country, with a view to the imports, and consequently the exports, being diverted *via* Konakri. This is only possible in the case of valuable commodities like rubber, which can stand the rate *via* the longer route. Low grade produce from the hinterland may have to go by the cheapest route or not at all. On the other hand the Konakri railway will continue to divert the trade of the northern provinces until the extension of the northern branch of the Sierra Leone Railway renders effective competition possible.

There is a mountain line six miles long connecting Freetown with the Hill Station, some 900 feet above sea level.

Feeder roads are being constructed to open up the country traversed by the railway. The Sherbro district is well served by several rivers, and the harbour at Bonthe is available for vessels of a draught of 18 feet.

GOLD COAST.—In the Gold Coast a 3 ft. 6 in. gauge line, 170 miles long, from Sekondi to Coomassi, has been in operation since 1903, and a branch line 20 miles long, from Tarquah to Prestea and Broomassie, was opened in 1911. Sekondi is the best port on the Gold Coast at the present time, being accessible by tugs and lighters instead of surf boats only, as elsewhere, but ocean boats have to discharge and take on cargo in the open roads. This port is now being improved. If it is possible to secure a better harbour with smooth water for ocean boats it would not only be better, but cheaper in the long run, for the colony to make great sacrifices to acquire such a port. A decision on this point must precede the framing of any comprehensive scheme of railways.

Attempts have been made to improve the landing facilities at Accra, but with qualified success, and a railway has been built for about 40 miles from Accra to Mangoase, and though only opened in 1911, is already paying well with cocoa traffic. The problem now is in which direction to extend this latter line, whether to Coomassi, in which case competition with the Sekondi line will at once be introduced, or more or less parallel to the coast to the Sekondi line, in which case most of the traffic will go to Sekondi, or northwards to open up new country. It appears that extensions of either line northwards beyond a certain point will have to traverse a sparsely populated belt, but in the long run a trunk line to the north will probably have to be constructed in view of French and German competitive lines, and if so it will be better to go through first and secure the traffic. The policy up to the present has been to construct trunk roads north of Coomassi, but there is all the difference in the world between trunk lines of roads and a trunk line of railway with feeder lines of roads.

The question of utilizing the Volta River is being investigated, but at the best this could only be regarded as a temporary main line of communication.

NIGERIA.

EXISTING RAILWAYS.—There remains to be considered Nigeria, our most important possession on the West Coast. We find at present a 3 ft. 6 in. line from Lagos, through the large centres of Abeokuta, Ibadan, Oshogbo, and Ilorin to Jebba (307 miles), across the Niger, partly by a bridge and partly by temporary train ferry, and *via* Zungeru—the administrative capital of Northern Nigeria—to Minna, where it joins a line from Baro, on the Niger, to Kano, the famous market of the Hausa States. The distance from Lagos to Kano is 712 miles, and from Baro to Minna 111, and Kano 356 miles. A branch 90 miles long has been constructed from Zaria to the Rahamma River towards the principal tinfields, and it is decided to extend this line to the top of the Bauchi plateau in the direction of Bukeru, both to serve the tinfields and to give

access to the healthier uplands. Unfortunately this branch line has been built in a 2 ft. 6 in. gauge, thus saddling the country with what will be an ever-increasing disadvantage unless a decision is faced to alter this line to the standard gauge of Nigeria and banish the 2 ft. 6 in. material out of the country. The French have had one or two narrow escapes in the past of introducing mixed gauges, but have luckily come through without, I believe, a single instance in West Africa.

In Nigeria we have ample scope for building "railways in the air." Great controversies have taken place in the choice of ports, Warri having been suggested as an alternative to Lagos as the port of the Western line. It has, however, been decided to plump for Lagos, and heavy works are being undertaken with a view to making the bar possible for ocean steamers, which at present transfer passengers to surf boats, and thence to "branch boats" in the open roadstead, and discharge their cargo at Forcados into branch boats for return to Lagos. Forcados, the ocean port for the Niger traffic, is a good harbour, accessible over a 19 ft. bar. From this port two independent lines of sternwheelers serve the Niger and Benue. Baro, the starting point of the Northern Nigerian Railway, has always been accessible during two-and-a-half months by steamers drawing 11 feet and conveying 1,000 tons of cargo; for nine-and-a-half months by sternwheelers drawing four feet and conveying 200 tons of cargo; and all the year round by launches drawing two feet. It will be seen that even without artificial improvements to navigation, the Niger will be a formidable competitor of the Lagos Railway.

EXTENSIONS IN SOUTHERN NIGERIA.—The dense population of Southern Nigeria will no doubt justify the construction of local lines not forming part of the main arteries of communication with the interior. To the east of the Niger a line some 60 miles long has been surveyed to connect Onitsha with the Udi coalfields, which are believed to be of considerable value. This line, if built, must obviously also connect with other future lines east of the Niger. A future line might run from Warri *via* Benin, with cross connections between the western line and Onitsha, Lokoja, or Baro. Nor is it likely that the densest population of all round Ikot Ekpene will be left undeveloped; and whether this area will be best served by a line from a secondary coast port such as Bonny or Opobo, or by a line from the head of the permanent Cross River navigation at Itu, will be an interesting point.

The coastal regions will be served by improving the navigation of the network of lagoons.

EASTERN TRUNK LINE.—It appears to have been generally accepted that a second trunk line serving the eastern portion of Nigeria should start from Calabar, and to have been assumed that this line would also serve Kano. A branch of the eastern trunk line directed on Kano would be the shortest route to the

coast, but would encounter an almost impracticable escarpment running east and west, north of the Benue. It would, however, serve the tinfields, and if in the future such a line is required, a rack section may solve the difficulty as in the case of the Delagoa Bay line to the Transvaal. The eastern port is two days further by sea, so that the Lagos line will always hold its own for passenger traffic. There are, however, already two competing lines from Kano, and the construction of a third may well be deferred till the Sokoto and Yola-Bornu areas have been provided for. Both these areas are likely to be threatened by foreign competitive railways, a fact which renders it necessary to make our trunk lines as direct as possible and ahead of competing lines.

As regards Bornu, it has already been shown that the Benue and Niger cannot compete with a direct railway from the coast to our eastern frontier, and the first consideration in selecting a trunk line to serve competitive areas such as Maidugari and Yola, is that the cost of transport to the coast should not be greater than by the German line from Garua.

Unfortunately the most direct line from Calabar, the inevitable port of Eastern Nigeria, would start by traversing a sparsely populated region, and the Shebshi mountains south-west of Yola might necessitate a detour or lead to Yola being served by a branch line. In the face of more attractive projects in other directions, and in the absence of reliable information regarding the country, there appears to be no immediate prospect of such a trunk line being constructed, but it is hoped that meanwhile local schemes will not be entered on which might clash with the requirements of the future.

CROSS COUNTRY LINE IN NORTHERN NIGERIA.—A cross country line useful for administrative purposes might be made from the Bauchi branch line some 40 miles from Zaria eastwards between the Ninghi Hills and the northern spurs of the Bauchi Highlands, *via* Nafada, the head of the navigable Gongola (a tributary of the Benue), to join the eastern trunk line, and it would probably pay to construct this line to develop Bornu until such time as the value of the traffic and the prospects of competition justify the eastern trunk line being undertaken.

WESTERN TRUNK LINE.—Turning to the west of Nigeria; Jebba, the point where the Lagos railway crosses the Niger, is the head of the navigable Lower Niger, being accessible by vessels drawing five feet during six months of the year, though for two months the draught available is under two feet. Above Jebba for about 120 miles up to Sekachi, navigation is impeded by a series of rapids quite impracticable for steam vessels and only passable by large canoes with difficulty during the high water. There is no possibility of improving this section of the river. Above Sekachi the Niger is again navigable up to Gaya in French territory, and to lesser extent up to Kompa,

where another series of rapids commences and extends with intervals up to Ansongo, whence the river is again navigable for sternwheelers for about 900 miles to Koulikoro.

The Sokoto River or Gulbin Kebbi joins the Niger opposite Gomba, and small canoes can reach the important market of Jega, on one of its branches, all the year round. This river is, however, unsuitable for a main artery of trade, and is used chiefly for local traffic.

The navigable section of the Niger from Sekachi to Gaya intersects every trade route from Sokoto to the coast, and the first railway to reach this section and start a service of river steamers will have the best chance of securing the Sokoto trade.

As stated before, it is proposed to extend the French Dahomey railway, which at present terminates at Savé, to Paraku and on to Jugu, and with sufficient inducement the line could reach Gaya, the proposed terminus on the Niger, 300 miles from Savé, in 1916.

The population of Sokoto Province is estimated as 1,300,000, and is densest in the regions bounding the Sokoto River and its tributaries.

Another factor in this particular problem is the possible advisability of building a line from, say, the bend of the Lagos Railway, north of Abeokuta to about Ilesha, to prevent trade being diverted to the French Railway. A possible solution of the Sokoto problem would then be to extend this line through Borgu, across the Niger east of Gomba, and so continue to Jega and Sokoto. This would be the shortest route to the coast, but would traverse a practically uninhabitated region in central Borgu, whose sparse population is found either along the frontier in the vicinity of the trade route from Sokoto, or along the banks of the Niger. It would involve an expensive bridge over the Niger in the middle of a navigable section, and several miles of bank over swamps north of the Niger.

As regards possible future trade from Borgu, this would probably be retained by a line to Okuta only.

Another solution would be to build a line from Jebba east of the Niger to Sekachi, and thence to Jega and Sokoto. This route to the coast would be longer, but sufficiently short to compete with any likely alternative route. The combined length of line, Abeokuta to Ilesha, and Jebba to Sokoto, would be about the same as Abeokuta to Sokoto *via* Ilesha. The line from Jebba would serve a larger population en route, and be more convenient for administrative purposes. The deciding factor in favour of the Jebba route may be that the Ilesha line is not so important as other lines in Southern Nigeria, while the Sokoto extension cannot afford to wait.

POSSIBLE EXTENSION TO ZINDER.—The Kano Railway may be extended some day to Zinder, the headquarters of the French Territoire Militaire du Niger. The extension would tap a good grain and groundnut district and existing potash traffic, and

while primarily justifiable only as a convenience to the French would doubtless pay its way in a few years time.

STATISTICS ILLUSTRATING THE RESULTS OF WORKING OF WEST AFRICAN RAILWAYS.

The development of traffic due to the construction of railways in West Africa has invariably exceeded all expectations, and it would be rash to assert that any section, however unpromising, would not pay its way. In Appendix 2, I have collected some figures of interest concerning West African railways. It will be seen that in 1911 the Sierra Leone Railway earned over 3½ per cent., the Lagos Railway nearly 4½ per cent., and the Gold Coast Railway 9 per cent. on their respective capital costs. The newly-constructed Baro-Kano Railway will pay its way this year. The first section of the Cameroons Railway started paying its way as soon as it was handed over to open lines. In 1909 the Dakar-St. Louis Railway cleared 11.3 per cent., the Kayes-Niger 2.2 per cent., and the Konakri Railway 3.7 per cent. on the capital cost, and the Ivory Coast and Dahomey Railways, though not yet paying expenses, were showing very rapid improvements in their returns.

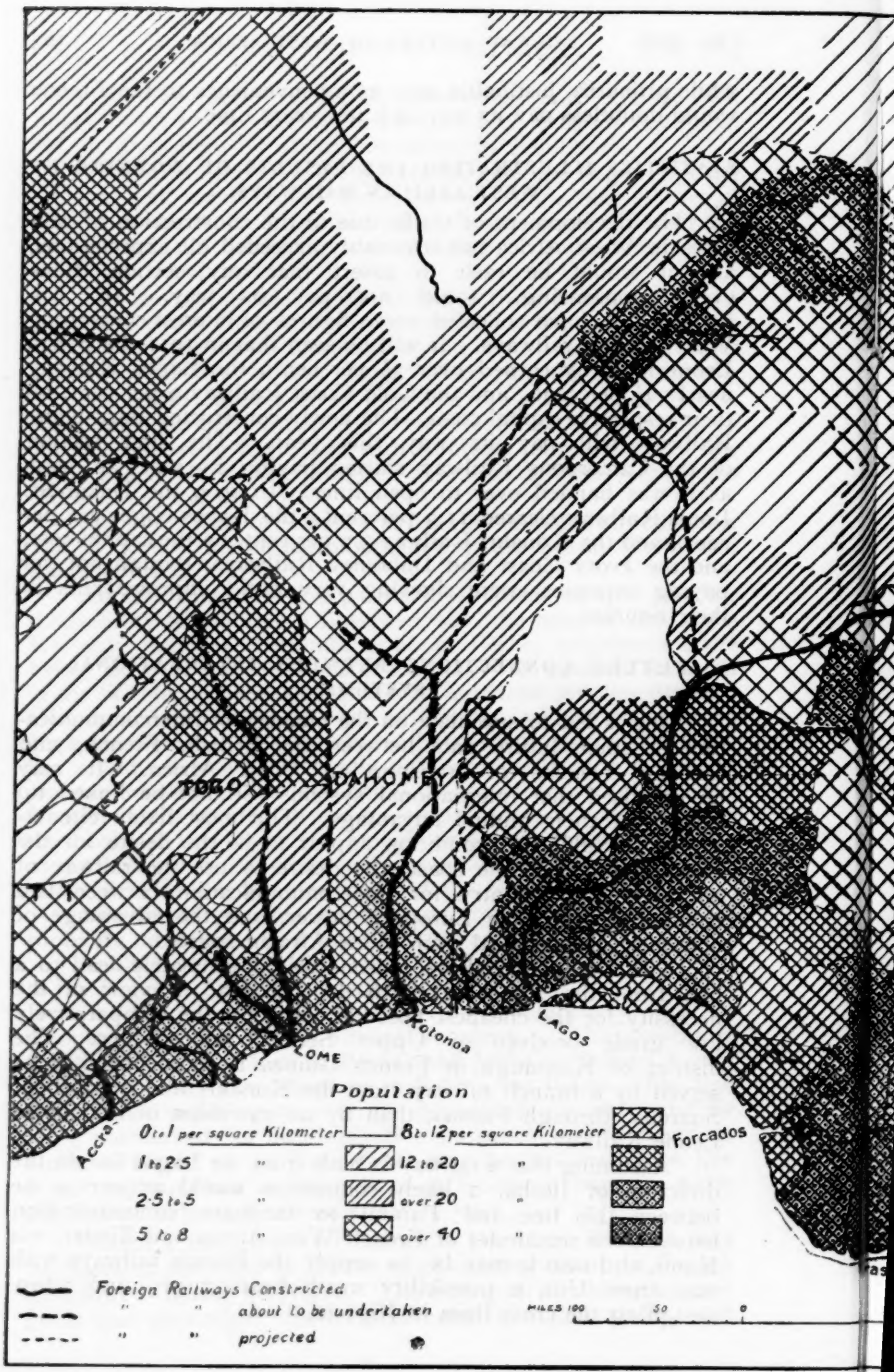
FUTURE CONNECTIONS BETWEEN INTERNATIONAL SYSTEMS.

One is led to speculate on the chances of intercommunication at some future date between the British, French, and German systems of transport in West Africa. It may be premised that international systems will not be linked up except for their mutual advantage. The most likely circumstances to fulfil this condition appear to be the desire for the cheapest outlet to the coast, the desire to use the railway of an intervening country for intercommunication between two colonies of the same European power, and the advantage of obtaining cheaper coal from West African sources.

The first of the above reasons might ultimately lead to a line from the Thiès-Kayes to the Gambia, in view of the necessity for the cheapest possible outlet for the comparatively low grade produce of Upper Senegal and Niger. The district of Kissidugu in French Guinea is more likely to be served by a branch railway from the Konakri line from about Suarella, through Farana, than by an extension of the Sierra Leone Railway.

Assuming that a railway is built from the Lagos line in the direction of Ilesha, a likely connection would appear to be between this line and Paraku to facilitate communication between the remainder of French West Africa and Zinder, *via* Kano, and also it may be, to supply the French railways with coal from Udi, a possibility worth bearing in mind when designing the cross lines in Nigeria.

POPULATION CHART OF WEST AFRICA



T AFRICA, SHOWING RAILWAY DEVELOPMENT.

A junction with the German railways appears to be less likely, as it is hoped that coal and oil deposits exist locally in the Cameroons.

SUGGESTED TRANS-AFRICAN RAILWAY.—I am afraid there is no time to review the project for building a railway from Algeria *via* Lake Chad, to connect with the Congo and South African systems. The proposed branch of this line to connect with the French West African system possesses added importance, in view of the recently-adopted policy of raising a native army in French West Africa for service in North Africa. The length of line to be built would be about 1,700 miles from the Algerian Railway to the Chad, and a 600-mile branch to the French West African system. From Lake Chad to Stanleyville would be roughly 1,500 miles more. The total cost is estimated at about 13 million sterling for the line to the Chad and branch to the Niger, and about eight-and-a-half millions for the second portion. A reconnaissance party has recently traversed the whole of the proposed route to the Chad and to the Niger, and is understood to have reported on the physical practicability of the scheme, which, if ever carried out, would attract the railways of all West African colonies to itself. At present the prospect of financing such a line may be very remote, but, apart from a possible discovery of minerals on the proposed route, the world-wide demand for accelerated communication, and the rapidly increasing importance of West and Equatorial Africa, may not inconceivably lead to the project maturing in the next generation.

STANDARD GAUGES OF WEST AFRICA.—Every junction of a British with a foreign line will involve a break of gauge. It is too much to expect the metre gauge to have been adopted from the commencement in British West African colonies on the chance of future connections with foreign systems, although Sir Walter Egerton, in or about 1904, actually suggested that the 124 miles of Lagos Railway then constructed should be relaid in metre gauge.

CONCLUSION.

It is, I hope, established that for the development of West African colonies by railways, a comprehensive scheme, based on the application of general principles to local conditions, is necessary from the very first, and it is submitted that no deducible conditions of the future are so remote as not to be given some weight in the framing of this general scheme. As the prosperity of a country increases, its arteries of communication become more and more important, and with increasing competition, disadvantages in the channels of transport, comparatively unimportant in the early stages, begin to accentuate themselves and may possibly have far-reaching influences, while the immediate considerations which governed the transport policy in the first case may have lost their force.

It is realized that conditions change and fresh information is always coming to hand to alter the data on which the earlier

schemes are based, that progress cannot wait indefinitely for facts depending on itself, that lines have been and will be constructed more or less in the dark, that every such line adds to the difficulties of framing the best general scheme, and that a patchwork system may result.

Under the circumstances I venture to assert that the first need is for the systematic collection and co-ordination of data with a view to determining with confidence the future trunk lines of railway. A great deal of information exists in a diffused form, and merely requires focussing to throw valuable light on the subject. Further information will have to be searched for with special reference to railway development, and the man on the spot with full knowledge of local conditions must be trusted to marshal the data and formulate the conclusions. It is not unlikely that the alternatives to choose from may be few. It may be that the route once selected must be closely adhered to, or, on the other hand, that the decision as to alternative routes may be safely reserved, but until the trunk line policy is defined there will always be risk of inconsistency with its attendant evils. Once the question of trunk lines has been settled, every projected and existing line resolves itself into either part of the main line, or a local or feeder line, and further construction can be confidently carried out in the order most profitable.

APPENDIX 1.

RAILWAY EXTENSIONS AND HARBOUR IMPROVEMENTS PROPOSED FOR EXECUTION UNDER LOAN OF £6,000,000 RAISED BY FRENCH WEST AFRICA.

Colony.	Description of Work.	Miles.	Amount £	
Senegal	Completion of Thiès-Kayes Line	180	1,000,000	
H. Senegal & Niger	Construction of line from Bamako to Buguni	100	620,000	
French Guinea	Extension of French Guinea railway from Kankan towards Beyla	187	1,000,000	£
Ivory Coast ...	Extension of railway from Bouaké towards the Camoé River (*a*)	181	1,760,000	(*a*) 800,000
,, ...	Branch line from Dimbokro towards Daloa (*b*)	144		(*b*) 960,000
Dahomey ...	Extension of Dahomey railway (*c*) from Savé to Paraku	112	1,220,000	(*c*) 800,000
,, ..	Continuation from Paraku, north-west to Jugu (*c*)	75		
,, ...	Construction of a line from Grand Popo towards Lokossa, joining Kotonu line at Segboroué (*d*)	35		(*d*) 220,000
,, ...	Construction of a line from Porto Novo to Kotonu (*e*)	17		(*e*) 200,000
Senegal ...	Improvements to the port of Dakar		240,000	
French Guinea	,, ,, Konakri		120,000	
Ivory Coast ...	Surveys and preliminary work on providing a sea-port for the Ivory Coast Railway		40,000	
		Total	6,000,000	

APPENDIX 2.

APPROXIMATE DATES AND COST OF CONSTRUCTION AND RESULTS OF WORKING OF WEST AFRICAN RAILWAYS.

RAILWAY.	MAIN LINE.				Average cost per mile to construct.	Year.	Miles Open.	Cost of working per open mile.	Percentage of working ex. to gross revenue.	Approx. interest earned on capital cost.	Gain or loss per mile of line open.
	Commenced	Completed.	Miles.	Terminus.	£			£			£
Lagos Railway ...	1896	1912	460	Minna[1]		1902	124	309	89·6		+ 36
						1903	124	365	89·4		+ 43
						1904-5	124	425	88·5		+ 55
						1905	124	452	78·2		+126
						1906	131	460	71·2		+186
						1907	178	41 7	53·3		+366
						1908	214	482	70·7		+200
					9,158	1909	272	485	64·76	2·88	+264
					9,479	1910	307	514	62·25	3·29	+312
					9,670	1911	307	576	57·6	4·38	+424
Baro-Kano Railw'y	1907	1911	356	Kano	3,570	1911	356				
Bauchi Light do.	1911	1912	90	Rahamma R.	2,220						
Gold Coast Railway	1898	1903	170	Coomass		1903[2]	124	382	71·89		+150
						1904	168	582	61·76	3·1	+360
					10,900	1908	168	447	49·61	4·15	+454
						1911	188	543	35·71	9·0	+977
Gold Coast-Accra Railway	1909	1911		Mangoase							
Sierra Leone Railway[3]	1896	1904	221	Baiama		1900	55	260	138		− 72
		1908	228	Pendembu		1901	76	244	104		− 10
						1902	76	280	99·7		+ 1
						1903	136	235	87·3		+ 34
						1907	226	298	91·7	·6	+ 29
					4,030	1909	254	270	81·4	1·5	+ 62
						1910	254	262	65·71	3·5	+144
					4,122	1911	254	262	64·87	3·61	+149
Dahar-St. Louis[4] ...	1882	1885	165	St. Louis		1886	165	775	452		−600
						1887	165	570	296		− 378
						1897	165	340	107		− 23
						1898	165	360	84	1·4	+ 67
					4,950	1909	165	490	46	11·3	+560
Kayes-Niger ...	1881	1906[5]	347	Koulikoro		1897	100	173	167		− 70
						1903	212	190	95	·2	+ 10
					5,500	1909	347	155	56	2·2	+120
						1910	347				+114
Thiès-Kayes[6] ...	1907	Under c'nstr'c-tion	Will be 425	Kayes							

[1] Minna to Zungeru, 38 miles, built 1910 from Minna. [2] June to December only.
[3] 2' 6" gauge. [4] 44 lb. rail.
[5] Rails reached mile 347 in December 1904. Almost entirely native subordinate staff, including engine drivers.
[6] About 240 miles completed. Work being carried out both ends. Net revenue Kayes-Ambidédi, 1910, £18 mile

APPENDIX 2.—contd.

RAILWAY.	MAIN LINE.				Average cost per mile to construct.	Year.	Miles Open.	Cost of working per open mile.	Percentage of working expenses to gross revenue	Approx. interest earned on capital cost.	Gain or loss per mile of line open.
	Commenced	Completed.	Miles.	Terminus.							
					£			£			£
Dahomey Railway[1]	1900	1910	162	Savé		1903	66	335	160		−129
						1906	131	290	210		−148
					4,150	1909	167	315	175		− 92
Dahomey, Porto Novo to Sakete[2]	1905	1908	25	Sakete	3,800						
French Guinea[3] ...	1900	1910	367	Karoussa		1905	96	315	94	·3	+ 20
						1907	138	340	86	·9	+ 56
					6,400	1909	185	310	57	3·7	+235
Ivory Coast[4] ...	1904	1912	195	Bouaké		1907	51	295	440		−220
					7,000	1909	108	200	184		− 92
Togoland Railways		1905	28	Anecho							
		1907	77	Agome Palime							
		1911	102	Atakpame							
Cameroons (Northern)		1910	102	Ngonsambo		1911[5]	100	150	76·5		+ 45
						1912[6]	100	93	64		+ 50
Cameroons (Centre)[7]		Under c'nstr'c-tion	Will be 178	Mbalmajo							

[1] 48 lb. rail. There is a 20 mile branch to Segboroué.
[2] Surface tramway over easy country. Gross revenue, 1907 £1,556, 1909 £5,303.
[3] Now being extended 40 miles to Kankan.
[4] Expenses of working construction traffic have been charged, but no revenue claimed.
[5] Last nine months only. } Entirely native subordinate staff except engine drivers.
[6] First six months only. } Three trains a week each way.
[7] Line reached Edea, 1912.

NOTE.—In 1911 the working of the Thiès-Kayes (Thiès section), Kayes-Ambidédi, Kayes-Niger, Konakri-Karoussa, and Ivory Coast lines resulted in a *net* revenue of £119,040.

DISCUSSION.

The Chairman, Sir Clement Hill, K.C.B., K.C.M.G., M.P.: In order to start the discussion, as there seems to be some reluctance amongst well-informed members of the society to send up their names or cards, I will take the liberty of committing a breach of the rules, by calling upon Mr. Frederic Shelford, who we know has had so much to do with the construction of the railways in West Africa, and whose lecture at the Institution of Civil Engineers I had the pleasure of listening to a short time ago. I will ask him to favour us with a few observations on the paper.

Mr. Frederic Shelford: I thank you very much for the honour which you have conferred upon me, Sir Clement, in asking me to make a few remarks. And in response to the invitation, there are perhaps a few observations which I might make to add to the interest of the paper which we have heard. First, some general conclusions in regard to the African railways.

COMPETITION BETWEEN RIVER AND RAILWAY.

Captain Mance said, at one point in his paper, that the Niger River formed an important competitor with the Nigerian Railway to Lagos. That, of course, remains to be seen, but as a general rule, I think we may take this as the fact, that railways cannot compete with ocean-borne traffic. That, I think, is fairly obvious. With regard to the Cape to Cairo Railway, which has been spoken of, if you were sending goods to the Cape, even if that railway were built, you would hardly expect that it would be cheaper to take them right across Africa than round the Cape by sea. And even with regard to passenger traffic, if a passenger were not in a great hurry I am sure he would find it more comfortable to go by Union Castle steamer than to go across Africa in a jolting train. With regard, however, to the problem of the partially navigable river, that is quite different. The Niger River I have been up at any rate once, with Sir Percy Girouard, and at his request made a rough survey. I found that it is not navigable for any vessel all the year round, at any rate when you get above Lokoja, and even below that it is not very navigable, even for steamers drawing two feet only, because I myself was once stuck on a sand-bar for 36 hours. And under those conditions, when you have valuable commodities to carry, I think it is more likely that they will be sent by rail than by the river. Sir Percy Girouard based a scheme of communication in Nigeria upon the Niger River; he pointed out that that river was not being used at all, or hardly at all, and his idea was to convey goods up and down the river as far as Baro, and from there by the Baro-Kano Railway. It remains to be seen whether Sir Percy Girouard's scheme will work out, because in competition with that you have the Nigerian Railway, which, I think, is more likely to get the traffic.

THE QUESTION OF RAILWAY GAUGES.

I must say a word about the question of railway gauge in West Africa, which Captain Mance has mentioned. Africa has now, in spite of all the efforts of a great many of us, got into a fearful jumble with regard to gauges: South Africa 3 ft. 6 ins.; Egypt 4 ft. 8½ ins. and 3 ft. 6 ins.; Uganda the metre gauge; all the French railways of West Africa the metre gauge; Sierra Leone 2 ft. 6 ins.; Gold Coast 3 ft. 6 ins.; Nigeria 3 ft. 6 ins., and 2 ft. 6 ins. As far as the last is concerned, I did all

that I possibly could about five years ago, practically unassisted, to prevent the introduction of the 2 ft. 6 in. gauge into Northern Nigeria, but somehow it has managed to arrive. I think the lesson of India, with regard to gauges, is one which should not be forgotten. The state of things in India now is such—I do not know India personally, but I know a good deal of it—that in parts of it you actually have two railways running side by side, one of one gauge and the other of another gauge. The beginning is so insidious, it is like a disease. At one time you want to make a little railway. You have not much money for the purpose; you make out that a 3 ft. 6 in. gauge railway would cost so much, and that a 2 ft. 6 in. gauge one would cost a little less. You yield to temptation—which is always a bad thing—and you go in for the little gauge, 2 ft. 6 ins. Then a time comes a little later, when you want to extend it. That has happened in Northern Nigeria, and this line to the tin fields has to be extended, and you have not the courage to alter the gauge—or I ought to say you may have the courage but I have never seen it shown yet—and so you extend it on the 2 ft. 6 in. gauge again. And so on it creeps, until it is possible you will have in Africa, as you find in India, two railways running side by side of different gauges, and the thing getting hopelessly mixed up.

FAR-SIGHTED FRENCH RAILWAY POLICY.

One of the most instructive parts of the paper is, I think, that which deals with the French railways, and the way in which the French have laid out in advance schemes for future lines. And I think one must be impressed, on looking at the map, much more with what they have done than with what we have done, and by the absence in our case of a comprehensive scheme laid out in advance. There is, as a matter of fact, pigeon-holed in the Colonial Office somewhere a report, which was made by my partners and myself, I forget how many years ago, as to the future extensions of British railways; but probably it has now got covered up with dust and forgotten. I do not know that I can say anything more, except to thank Captain Mance for his paper, which has been most interesting.

Dr. T. Miller Maguire, M.A., LL.D.: I should like to ask a question. Very grave doubts are often expressed as to whether African or American natives have hitherto benefited in the least by the introduction of European civilization—falsely so-called. I know that Khama protested that railways would ruin Bechuana! Does the gallant Lecturer believe that any material or moral benefit will accrue to the natives by the proposed railways, French and British, which he has so very ably described? Will the male or female natives in the districts traversed by these rapid means of transit not lose more than they will gain? Will they be exploited? Shortly, will any material or moral good to humanity at large arise in these benighted lands from the railways? Is there not a great danger of the natives becoming mere decadent adjuncts of machines, like the poor victims of the "Manchester School" in Lancashire or Lanarkshire. I would much prefer that my friends should be native warriors than North of England miners. The native women—as they are—must be far superior in every way to the poor sweated girls on coal pit banks, or in factories, or in the Liverpool or Glasgow slums, which I have explored. Will the effects of railways be human degeneracy or improvement? This is a vital matter in my mind, and of strategic importance with regard to the

future of the military forces of West Africa, and of more importance to all of us here than whether the management of these new, and, perchance, deadly innovations, be in the charge of State bureaucrats or of commercial adventurers.

The Chairman, Sir Clement Hill, K.C.B., K.C.M.G., M.P.: It is my pleasant duty to say a few words on this paper. And though I cannot pretend to say anything on the technical part of it, I can say that it has given me immense pleasure to come here to-day, because all the names which have been mentioned now, the railway termini and the places of interest for the future construction of railways, were names most familiar to me in those great proceedings which took place, and which terminated in 1898, when we were discussing with France the division of these districts. At that time all the explorers and those engaged on the delimitations had to go on foot, and there was hardly a sign of a railway, if such did exist at that time. It is almost impossible to realize that those places were so little in touch then, and yet are so close now. And we are trying to bring them into still closer communication by means of the railway.

GOVERNMENT AND PRIVATE ENTERPRISE.

There is a point which our Lecturer did not touch upon, one which struck me first on reading his paper, and that was, that he only deals with the construction of railways by the Governments of the countries. I know it has been a cardinal principle with the Crown Agents, of this country at all events, and, I daresay, with the Government institutions of other countries, that they can build railways cheaper than commercial companies can, and that therefore they begin by building these railways in these wilder countries, so far as they can, for the Government, instead of putting them out to contract. But I have always held, that—though it may be possible, and though it certainly is desirable, that such a scheme as has been foreshadowed by Captain Mance should be borne in mind by the Governments, and that they should keep their eyes on the strategical and commercial advantages that are to be obtained from the carefully thought out construction of railways in this country—it is nevertheless open to question whether, when we have built railways—if they are to be built cheaper by Government contracts and enterprise—they should not be offered to private companies to develop. Of course, that is a very unpopular view with many people, I know, because there is a great tendency now to nationalize the railways and everything else. At the same time, it seems to me it is very difficult in this country which we have been talking about, to get railways developed. This is not a political question; whichever Government is in power has very great difficulty in coming to the House of Commons and saying I want a large grant of five or six millions so as to carry out a comprehensive scheme of railway development in this or that country. We can remember all the opposition there was to the Uganda Railway, which was built by the Government, not as a commercial enterprise, but to carry out our obligations under the Brussels Act, which constrained us to develop countries that we had taken over and to put down the slave trade. Now, in spite of what Mr. Harcourt has done—and I give him great credit for his wish to develop these railways—he would agree that it is very difficult to come to the House of Commons and get these large grants whenever developments and feeders are required for certain railways. And it can only be done by the expression of opinion by those who hold the view that it would be conceivably worth

while to sell some of these railways, or make them over under certain conditions as to transit rights, etc., with provision that the trade shall not be stifled in any way, so as to see if they could not develop the country quicker than we can by Government enterprise. That has always been more in my mind than anything else when I have heard of these Government railways, or have had, as I did with the Uganda Railway, to take part in their construction. At all exents, I think the idea is worth considering.

THE PROBLEM OF NATIVE LABOUR.

There was nothing in the paper to show us how these railways are built, how we get native labour, what labour there is, how it is employed, whether there is a sufficient supply of it, whether it comes very willingly, or whether any pressure has to be put on the chiefs to cause them to supply it. We know that there are very great risks in the obtaining of native labour in the building of railways: in the construction of the Uganda Railway we could not get any native labour at one time, and we employed 26,000 Indian coolies on the line. Though they enabled us to build the railway, it was a very expensive method of getting labour; we were hampered by all sorts of regulations by the Indian Government, with the object of ensuring that the labourers should be well treated, and at that time we had to press the railway on. But we were unable to get native labour; and I should like to hear, if Captain Mance can tell us, how the supply for the construction of this railway is obtained in West Africa.

The Lecturer, Captain H. O. Mance, D.S.O., R.E., in reply, said: With regard to the navigability of the Niger, time will show to what extent this river can be relied on. If, however, nothing further is done to try to improve the river, the trial cannot be considered a complete one. At present, during low water, the chances of a vessel grounding are as largely dependent on the skill of a native pilot as on the depth of the channel.

CONSTRUCTION BY GOVERNMENT OR COMPANIES.

Referring to the Chairman's remarks on the subject of the construction of railways by Government, it is hoped that the success of railway construction in Nigeria will be a very good argument in itself for Government continuing to construct railways. I think the Chairman had principally in mind the very important matter which is half the business of constructing railways, and that is the provision of funds. It is to be feared, however, that if companies are allowed to construct railways, they would be concerned more with making them pay than with the development of the country by them, which is the main object of a Government. As regards the provision of funds, it is not necessary to furnish a very large amount all at once; it would be probably better for the Government to furnish sufficient funds to construct, say, 200 miles of railway a year regularly. That would enable traders to follow up the railway as it is extended, and it would have the added advantage of cheapening construction by retaining the same staff of engineers and foremen on the work. I hope the Chairman's remarks will be taken to heart in the right quarter, and that money will be forthcoming, because I am certain it will be very well spent, and it will repay itself again and again.

NATIVE LABOUR.

I should have preferred that Mr. Goldsmith, who has written able articles on the subject, should have given us his views on the subject of the employment of native labour on the Nigerian Railways. The system employed in Northern Nigeria has been since strongly recommended in a French paper for introduction into French West Africa. It depends on enlisting the co-operation of the political staff in the administration of labour. This was most successfully accomplished in Northern Nigeria, where the political and railway staffs worked in complete harmony. The principle was, as far as possible, to keep the same organization on the works as in the villages. The natives who worked together were recruited from the same district; they came with their own headmen, and they had their own miniature villages alongside the railways. As far as possible, we employed only those who lived near the work. Labourers were well treated by people who thoroughly understood them, as the railway staff very soon got to know the conditions of the country. The adoption of task-work resulted in a full day's work being usually completed at an early hour of the afternoon. Wages were paid into each labourer's own hands in cash by a European paymaster. The result was that the natives knew they could expect actual money for the work they did, and that they could do with it what they liked. We went to considerable trouble—and sometimes it was a great nuisance—to pay these labourers once a week. The question of food supply received constant attention. The only natives who came from the coast were artizans, who could not be obtained locally. A limited quantity of floating labour was also available.

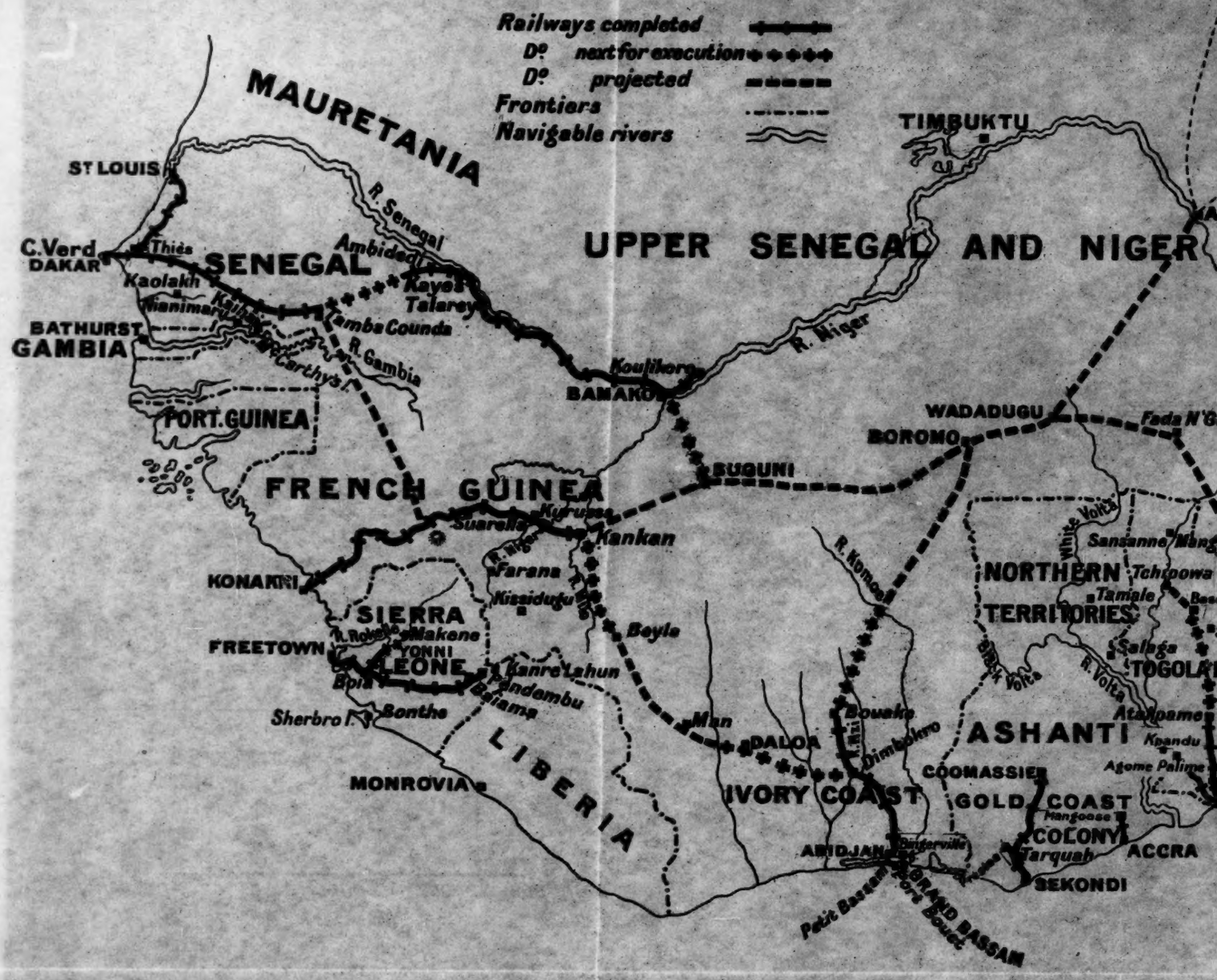
I am unable to give you further information on the subject of coal in Nigeria, but I understand it is considered to have better prospects than the lignite, which is found in the same neighbourhood.

I do not think I can go into the question of whether railway construction tends to improve the condition of the inhabitants. It seems to me that this point is more an ethical one, and is beyond the scope of this lecture. I may, however, be allowed to mention one phase of it. Assuming it is desired to give the natives the best administration we can; this administration costs money, and, in order to get the money without injustice to the inhabitants, it is necessary to increase their prosperity. That cannot be effected beyond a certain point without means of communication, which will enable them to expand their markets. Therefore, from the point of view of the philanthropist, the improved administration which we feel we can give to these natives—better administration, we think, than that of other great nations—can be obtained indirectly by providing railways.

I think I have now dealt with all the points which have been raised.

The Chairman: I have only one more duty, and I am sure you will join with me in conveying a hearty vote of thanks to the Lecturer for his interesting lecture to-day. As far as I am concerned, the remarks which he has made with regard to labour are satisfactory, and he shows that the labour employed in building the railway has been used in quite the right way.

RAILWAY DEVELOPMENT IN WEST AFRICA



To Salet 600 Miles
From Salet
In Gessan
Agades
HANSONGO
N'Gigmi
Bir Alali
NIGER MILITARY TERRITORY
ZINDER
LAKE CHAD
R. Niger
SOKOTO
R. Sokoto
Gando
JEGA
Geidam
Kukuwa
R. Hadeija
Fort Lamy
Kompa
GAYA
Bunza
Kienda
KANO
Maidugari
Kussemi
BORNU
NORTHERN NIGERIA
Gomba
Sokachi
ZARIA
Nafada
R. Gonfola
R. Shari
R. Logone
Ningi
Rahamma
R. Kaduna
Bauchi
Waraguta
Bukuru
Bussa
Zungeru
MINNA
Lere
Yola
Garua
Jugu
Bassari
PARAKU
Sokode
Okuta
Ilesha
Bida
EBBA
BARO
ILORIN
Loko
Ibi
R. Benue
Kaiua
Ngaundere
R. E. Logone
DAHOMEY
SAVE
Oshogbo
LOKOJA
R. Niger
Ibadan
Abeokuta
Benin
NIGERIA
ONITSHA
UDI
Banjo
Tibati
Kunde
CAMEROONS
LAGOS
WARI
FORCADOS
Ilkot Ekpene
Bonny
Dschang
Bamum
Yoko
MANENGOBA MT.
CALABAR
Gonsamba
Gamanes
Dume Station
R. Kadei
R. Dume
BUEA
DUALA
Joppos
Victoria
Opobo
Abong Mbang
Yaunde
Ebolmajo
Nola
FERNANDO PO
Ede
R. Njong
WIDIMENGE
Ebolowa
Kribi
Kampo
R. Ngoko
Moloundu
R. Sanga
R. Ubangi
SPANISH GUINEA
Wesso
LIBREVILLE
GABON
GUINEA

THE ITALIAN FLEET DURING THE LIBYAN WAR.

A Summary of the Movements of the Naval Forces.

Translated from the *Rivista Nautica Italia Navale*, November, 1912, by Major H. D. Farquharson, R.M.L.I. (War Staff).

WHILST the whole country is congratulating the Navy on its past achievements, the *Rivista Nautica*, with faith in the future, adds to its account of the demonstrations at Naples, a record of the work of the Fleet during the thirteen months of the war in Libya. We prefer the title, "War in Libya," to that of "Turco-Italian War," because the exigencies or requirements of international politics, and, above all, the desire evinced by Italy not to declare war with Turkey, have limited the theatre of operations and fighting to the true objective of the war, and so have caused the same to develop on the most normal lines. If, however, during the last few months the radius of naval operations has been extended, the limitations aimed at have always been kept in view.

Another warning, which we consider indispensable, is that this summary of the movements of the Fleet gives by no means an adequate idea of the work of the Navy. Its "wise preparations" have been highly lauded, but "its final preparations" are not yet sufficiently known. These latter preparations, without the former, would have been slower and less orderly; but preparation made in advance would not alone be sufficient to carry out with such care and order the task required—a task greater than that of the mobilization of the Fleet, namely, the organization of the convoy for the Expeditionary Force, and of all the calculations of time and distance for the expedition and for the occupation.

The Italian Government presented an ultimatum to Turkey on September 28th, 1911, and on the 29th declared war on the Ottoman Power.

September 29th: On the afternoon of the 29th, two divisions of destroyers, under the command of the Inspector of Torpedo Boats, Rear-Admiral the Duke of the Abruzzi, pursued two Turkish torpedo-boats coming out of Preveza. One of these, after being repeatedly struck with projectiles, ran ashore; the other re-entered Preveza. The same day, Vice-Admiral Faravelli, with the "Benedetto Brin," "Sardegna," "Re Umberto," and "Carlo Alberto," left Augusta for Tripoli to demand its surrender. The "Emanuele Filiberto," and "Sicilia," also sailed for Tripoli.

September 30th: At Gomenitza the "Artigliere," Commander Biscaretti, and the "Corazziere" sank a Turkish destroyer and a torpedo-boat. The "Alpino" captured the yacht "Theties." The "Pisa" and "Amalfi" destroyed the wireless station at Derna. The ships of the Second Squadron cruised off the port of Tripoli.

EVENTS IN OCTOBER, 1911.

October 1st: The "Marco Polo" captured the Turkish steamer "Sabah" at S. Giovanni di Medua, with troops and a cargo of war material. The same night the "Albatros" cut the cable between Tripoli and Malta. The "Vittorio Emanuele III.," "Roma," and "Agordat" left Augusta for Cyrenaica.

October 2nd: The "Vittorio Emanuele III." and "Agordat" joined the "Pisa" and the "Amalfi" at sea. Rear-Admiral di Revel arrived at Tripoli, as envoy of Vice-Admiral Faravelli, Commander-in-Chief of the Second Squadron, to summon the Vali to surrender Tripoli. The Commander of the Second Squadron, after the Vali had come on board, with his secretary and another official, accompanied by Rear-Admiral di Revel, informed the Consuls that if the town was not surrendered by noon the next day (October 3rd), he would open the bombardment.

October 3rd: At 2.30 p.m. the ships of the Second Squadron were disposed in three groups to attack the fortifications to the west, centre, and east of Tripoli, respectively, and the crews went to general quarters. At 3.30 p.m. fire was opened on the works of the lighthouse. At 6.10 p.m. the action ended and the ships proceeded to sea. The ships of the First Squadron arrived at Tobruk, and anchored to the east of the mouth of the harbour. The "Agordat" entered and reconnoitred the harbour.

October 4th: At 8 a.m. the Training Division and the Second Division of the Second Squadron bombarded the Sultania and Hamidieh forts respectively, to the west and east of Tripoli. The First Squadron entered Tobruk Harbour. The "Vittorio Emanuele III." fired on the Turkish fort, which hauled down its flag. A landing party under Commander Frank reached the fort, occupied it, and hoisted the Italian flag, which was greeted with a salute and cheers.

October 5th: At Tripoli, the Training Division occupied the Sultania fort with landing parties, and hoisted the national flag. During the afternoon a naval brigade, under the command of Captain Cagni, was landed from the Second Squadron, and occupied Tripoli. At sunset the Italian flag was flying on the Vali's castle. Rear-Admiral Borea Ricci was nominated Governor of Tripoli by order of the Commander-in-Chief of the Second Squadron. At Tobruk half the naval detachment was re-embarked.

October 6th: Twenty abandoned Turkish field guns were taken, and 20 soldiers captured. His Excellency Vice-Admiral Faravelli issued a proclamation to the Arabs that he had taken possession of Tripoli in the name of the King. The "Vittorio Emanuele III." left for Augusta and joined the "Roma" at sea.

October 7th: Rear-Admiral di Revel's Division left Tripoli for Augusta. Rear-Admiral Borea Ricci hoisted his flag on the Vali's castle. The "Vittorio Emanuele III." and "Roma" met the "San Marco" at sea, escorting the "Volta" and "Favigna" with war material for Tobruk.

October 8th: The enemy attacked our sailors in the trenches of Bu-Meliana; our men were supported, however, by the guns of the Fleet, and the enemy retired. The "Vittorio Emanuele III." and "Roma" arrived at Augusta.

October 10th: During the night our sailors were again attacked for two hours at Bu-Meliana; after heavy firing again by the ships, the enemy retired, leaving three killed, besides arms and ammunition. The first transport arrived at Augusta. Two transports sailed for Tripoli direct, namely, the "Verona" and "Europa." The remainder of the convoy, 18 ships, sailed in the evening, escorted by Rear-Admiral di Revel's Division, the "Ammiraglio di Saint Bon," two small cruisers, and torpedo-boats.

October 11th: The "Verona" and "Europa," escorted by the "Varese," arrived at Tripoli. The troops were landed with the greatest expedition in the boats of the whole Fleet. Before sunset the sailors were relieved at the outposts. The "Bormida," escorted by the "Etna," left Augusta for Tobruk with material for the temporary base.

October 12th: The convoy with the Corps of Occupation reached Tripoli. The "Regina Elena" arrived at Augusta.

October 13th: The Naval Brigade of Occupation was re-embarked. Rear-Admiral Borea Ricci was relieved as Governor by His Excellency General Caneva.

October 15th: The "Pisa," "Amalfi," and "San Marco" left Tobruk for Derna.

October 16th: At Tripoli the landing of troops and material proceeded expeditiously, with the aid of stores supplied by the warships. At Derna the "Pisa" demanded the surrender of the place, which was refused. The "Pisa" bombarded the trenches on the coast and the houses beyond. The landing party could not reach the shore on account of the heavy sea that was running. Destroyers also fired on the trenches at short range. The "Vittorio Emanuele III.," "Roma," and "Regina Elena" left Augusta, accompanied by two divisions of ocean-going torpedo-boats escorting the convoy, whose objective was Cyrenaica.

October 17th: The "Varese" bombarded Homs, which refused to surrender. The convoy for Cyrenaica continued its voyage. Derna surrendered. In spite of a very rough sea, and after several wonderful attempts, a naval detachment succeeded in reaching the shore. In the afternoon the Italian flag was hoisted and saluted.

October 18th: The "Varese" failed to land troops at Homs on account of the sea. At Derna, the troops sent to reinforce the sailors, began to disembark. The convoy reached Benghazi, where the "Napoli" and "Amalfi" had already arrived. A boat, flying a white flag, landed the Chief of the Staff of the First Squadron to demand the surrender of the place. In the afternoon it was decided to make a feigned landing to the east of the city, and to disembark the troops at Giuliana. At sunset the "Piemonte," "Etruria," and "Liguria" left for a reconnoitring cruise.

October 19th: At Derna the high seas prevented all communication with the shore. At Benghazi the ships were disposed at dawn to cover the landing at Giuliana. No reply having been received at 8 a.m. from the Turkish military authorities, the landing was begun in heavy rain, a fresh north-north-easterly wind and rough sea; and a bombardment was opened on the shore and the dunes occupied by the Arabs. The destroyers and torpedo-boats also joined in the action. On the landing party reaching the shore the ships ceased firing. The sailors began to advance, but were suddenly checked by heavy musketry fire from some Arabs in a house, on which the ships directed a fierce fire. It was at that moment that Marco Bianco fell at the head of his battalion. In the meanwhile part of the troops of the Expeditionary Force had been landed, and had advanced in support of the naval detachment. In the afternoon the soldiers and sailors began a forward movement in two columns against the barracks at Berka, from which heavy musketry fire had opened, and on which the larger ships now directed their fire. After a few rounds the Turkish flag was hauled down. At sundown the troops and sailors took possession of the barracks, and the troops occupied in turn all the positions and villages to the west of Benghazi. As the Arabs were shut in in Benghazi, General Briccola asked that the city might be bombarded, and, with the assistance of searchlights, a violent cannonade was opened against it at 7 p.m. Throughout the night musketry firing continued in the trenches.

October 20th: Reinforcements from Tripoli, escorted by the "Benedetto Brin," reached General Briccola. At Derna all was quiet.

October 21st: The "Benedetto Brin" arrived at Homs and co-operated with the "Varese" in the disembarkation of the 8th Maggiotto Bersagliere. At 8 a.m. the Italian flag was hoisted on the castle. The following days were spent by all the ships stationed in the various ports, in furnishing, with inde-

fatigable energy, men and stores, to assist in landing troops and material of war.

October 26th: At Tripoli a furious attack on the Italian lines from the east was vigorously repulsed. The naval detachment from the "Sicilia" distinguished itself in this assault at Fort Hamidieh. Pietro Verri fell gallantly in the same action.

EVENTS IN NOVEMBER, 1911.

On November 5th, the "Puglia" sank a Turkish gunboat at Akabah. On the 30th, the "Volturno" bombarded the forts of Sheikh-Said and Mokha, and destroyed some dhows collected there for the transport of troops. During the whole month the ships of the First Squadron in Cyrenaica, and those of the Training Division in Tripolitana, assisted in unloading transports and in patrolling and defending the extreme flanks of the Italian positions. The small ships continued unceasingly to cruise along the immense expanse of coast line, to prevent smuggling, and to fire on the enemy's positions and camps. During this month the Second Squadron remained concentrated at Augusta, carrying out exercises either collectively (in divisions or squadrons), or singly.

EVENTS IN DECEMBER, 1911.

During the first ten days of this month, the Second Squadron left Augusta for Cyrenaica, and relieved the First Squadron. The Training Division, the "Liguria," "Partenope," "Coatit," "Iride," "Carlo Alberto," and "Cyclope," remained in Tripolitana, and when not employed in warlike missions carried out hydrographic surveys at Tripoli.

EVENTS IN JANUARY, 1912.

On the first of the month the cruisers in the Red Sea bombarded various Turkish forts and camps situated on the coast. On the afternoon of the 7th, the "Piemonte," with the destroyers "Giuseppe Garibaldi" and "Artigliere," surprised seven Turkish gunboats at Kunfidah. The "Artigliere" opened fire alone on the enemy, and the "Piemonte" and "Giuseppe Garibaldi" joined in later. Some of the gunboats were scuttled; the remainder were run ashore. The yacht "Fauvette" was captured, and many trophies taken. Nothing else of note occurred during the month, except the splendid work of the Italian ships in assisting at the various ports in landing stores and troops, the continuous guarding of the whole coast, carried through under difficult conditions, both of weather and of navigation, and the co-operation of the guns of the fleet, in all the actions which took place on shore.

EVENTS IN FEBRUARY, 1912.

On the evening of the 20th, the "Giuseppe Garibaldi" left for Beyrout, and was joined at sea next day by the "Francesco

Ferruccio." The two ships received orders to capture and destroy a gunboat and a torpedo-boat in the port of Beyrout. On the 24th, at early dawn, they arrived off that port. At 7 a.m. the "Giuseppe Garibaldi" signalled to all neutral ships to quit the harbour, and emphasized the signal with a blank round, to which the gunboat replied with a projectile. At 7.20 a.m. a Turkish whaler left the harbour with a flag of truce, in command of a lieutenant, who stated that the gunboat was the "Awni-Illah." He was handed an ultimatum, that the two ships must be surrendered by 9 a.m. At 9.5 a.m. the signal "Surrender" was hoisted, and seven minutes later, no reply having been received, the "Giuseppe Garibaldi" opened fire with her 6-inch and 8-inch guns. The "Francesco Ferruccio" followed her example. The Turkish gunboat immediately replied, and her few rounds fell near the "Giuseppe Garibaldi." After a few rounds the gunboat was no longer in a condition to reply, caught fire, and struck her colours. The "Giuseppe Garibaldi," therefore, moved in to within 100 yards of the mouth of the harbour, and began to fire on the torpedo boat, which fled to the head of the harbour, behind some shipping; the gunboat was finally sunk by a torpedo. On the conclusion of the action the two ships put to sea.

Off Tripolitana and Cyrenaica all the ships continued their normal patrolling.

EVENTS IN MARCH, 1912.

On the 4th, Vice-Admiral Augusto Aubry, the Commander-in-Chief of the naval forces, died on board his flagship, the "Vittorio Emanuele III.," at Taranto. Vice-Admiral Luigi Giuseppe Faravelli was nominated in his place, and arrived from Tobruk in his flagship, the "Benedetto Brin." The command of the Second Squadron was entrusted to Vice-Admiral Leone Viale, and he hoisted his flag in the "Regina Margherita."

The First Squadron remained concentrated at Taranto, and the Second at Tobruk.

EVENTS IN APRIL, 1912.

On the 7th, Vice-Admiral Faravelli requested to be relieved of the command of the Naval Forces on account of ill-health. On the 10th, Vice-Admiral Leone Viale succeeded to the command, and embarked in the "Vittorio Emanuele III." Vice-Admiral Amero d'Aste Stella was given the command of the Second Squadron.

On the 10th, at Ras-Macabez, with their accustomed dash, and, in spite of the fury of the sea and wind, the sailors of the Training Division effected the disembarkation of Garioni's Division, which, during the succeeding days, occupied Fort Forwa and began a continuous series of attacks and reconnaissances against caravans.

On the 12th, the "Vittorio Emanuele III." and the "Coatit" left Taranto for Stampalia, arriving there on the 15th.

On the same day Rear-Admiral di Revel's Division, consisting of the "Giuseppe Garibaldi," "Varese," and "Francisco Ferruccio," arrived from Tobruk. On the 17th, at dawn, the naval forces rendezvoused to the south-east of Skyros. They consisted of the First Squadron, the Second Division of the Second Squadron, two auxiliary cruisers, the "Duca di Genova," and the "Duca degli Abruzzi," and the cable ship, "Citta di Milano."

The night of the 17th-18th was spent by the naval forces in cruising to the north-west of Imbros. In the meanwhile the "Citta di Milano" cut the Imbros-Dardanelles cable within 5,500 yards of the forts, and, although under the search-lights, was not discovered. Later she proceeded to cut those between Lemnos and Tenedos, and Lemnos and Salonika. The "Vettor Pisani," which was cruising with destroyers and torpedo-boats to the south-west of the Dardanelles, was forced by the heavy seas to take shelter. Very early next morning Rear-Admiral Presbitero's Division moved forward to the entrance of the Straits out of range of the forts, and remained there until 9 a.m., when, the enemy's fleet showing no signs of coming out, the whole of the Italian naval forces advanced in line ahead towards the Straits. At the entrance a Turkish destroyer was sighted, which appeared from its profile to be one of high speed and of German build. Rear-Admiral di Revel's Division was ordered to advance to the entrance of the Straits and sink the destroyer, but the latter withdrew speedily within the Straits. At the same moment the Orkanieh redoubt opened fire, followed by that of Ertogrul. Rear-Admiral di Revel's Division immediately replied, under orders of the Commander-in-Chief. The three divisions were then disposed according to instructions issued to attack three groups of forts. Fire opened at 11 a.m. and ceased at 1.15 p.m. The heavy coast artillery of the Turkish forts replied with considerable accuracy, but without hitting any of the ships. One projectile struck the "Francesco Ferrucio's" ensign halyards, and brought down the colours on deck, but they were rehoisted at the masthead.

The well-disciplined fire of all the ships was from the very outset concentrated and effective, the distance maintained ranging from 11,000 to 13,000 yards. At the forts of Orkanieh and Ertogrul clouds of yellow smoke were observed, without doubt caused by explosions of reserve ammunition and magazines. (From later information it was ascertained that the damage to the forts was considerable, and that the number of dead and wounded during the whole action amounted to several hundreds).

At 1.40 p.m. the whole naval force concentrated and retired in a northerly direction to the north-west of Imbros, and passed at a distance of about 15 miles to the west of Lemnos. The crews were held in readiness during the whole time to repel torpedo attacks. Next morning, April 19th, the Fleet reached Mudros Bay, Lemnos.

At 2 p.m. the "Pisa," "Amalfi," and two destroyers left. At 5 p.m. the rest of the Fleet, and later, the auxiliary ships, left the anchorage for the Canal d'Oro, to return to Italy, in accordance with wireless orders to the Commander-in-Chief from the Ministry.

On the 18th, the "Emanuele Filiberto" bombarded and destroyed the Turkish barracks at Vathy in the island of Samos, and the "Ostro" sank the Turkish yacht "Ircanieh." On the same day the "Benedetto Brin," after a long search, succeeded in cutting the telegraph between Rhodes and Marmarice, and blew up the house that guarded the landing place. On the 19th, at dawn, the same ship destroyed the wireless station at Patras. On the 20th, the "Citta di Milano" cut the cables between Syra and Scio, and between Scio and Cesmé; the "Pisa," entering the Bay of Eritra, bombarded and destroyed the wireless station of Cesmé, and afterwards returned to Stampalia with the "Amalfi." At dawn, on the 23rd, detachments from the "Pisa" and "Amalfi" surrounded the Livadia district in the island of Stampalia, and forced the little garrison to surrender. The Italian flag was hoisted on the historical castle.

EVENTS IN MAY, 1912.

On May 2nd, the 1st Division of the First Squadron, accompanied by a squadron of destroyers, and one of ocean-going torpedo boats, arrived at Stampalia from Taranto. The "Pisa," "Amalfi," and "San Marco" had already arrived there. The "Coatit," during the night, and the "Citta di Milano," in broad daylight, cut the cable between Rhodes and Candia, in two different places. At sunset General Ameglio's Expeditionary Force left Tobruk for Rhodes. The same evening, the "Pisa" sailed northward, where the "Amalfi" was already stationed on the look-out to prevent reinforcements and hostile ships from reaching Rhodes. A squadron of destroyers reconnoitred the Gulfs of Kos and Mendeleya, and the "Coatit" visited the Gulf of Marmarice.

On the 3rd, at 2 p.m., the First Division of the First Squadron and the "San Marco," with a section of destroyers and a squadron of ocean-going torpedo-boats, left Stampalia for Rhodes. At 1.20 p.m. the convoy, escorted by the First Division of the Second Squadron, a section of destroyers, and a section of ocean-going torpedo-boats, was sighted to the south-east of Rhodes. The "Napoli," "Roma," and "San Marco" launched their boats, which were collected by the torpedo boats and towed to the transports. The "Roma" and "Napoli," stationed themselves in turn to the south-east and east of the city of Rhodes, the "San Marco" to the north-east, and the "Regina Elena" to the north-west. The "Pisa" and "Amalfi" rejoined from their cruise and anchored to the north of the port of Rhodes; the destroyers and the "Coatit" also

returned. At noon the "Alpino" entered the harbour flying a white flag. Her commander carried the demand to surrender, and the declaration of the blockade of the island to the Governor, and also informed the German consul resident there. The Military Governor was not at Rhodes, but the Civil Governor decided to yield only to force.

The landing, therefore, began at 4 a.m. in the Bay of Kaliteas, and continued rapidly under the direction of Captain Magliano, of the Navy. At 9.50 a.m. all the troops were on shore, and at 2 p.m. the advance began. The naval detachments of the "Benedetto Brin" and "Emanuele Filiberto" accompanied the soldiers. During the advance on Rhodes, which met with little opposition, the ships fired shrapnel on the Smith Plateau, where movements of some hostile columns were observed.

At sunset, the advance was suspended, and the ships remained to watch with their search-lights the two coasts, west and east of Rhodes, while their crews remained at their stations ready to repel any attacks by hostile torpedo craft.

In the evening, the Commander-in-Chief of the naval forces received the Vice-Vali and the Director of Police, who promised to ensure order in the City. In spite of which, during the night the doors of the prisons were opened and the convicts escaped.

The Commander-in-Chief sent his Chief of Staff, Rear-Admiral Corsi, ashore, to ascertain the true state of things in Rhodes, and in consequence of the information he received, two companies of sailors were landed, with which Rear-Admiral Corsi occupied and guarded the city. A naval lieutenant was sent to General Ameglio's camp to acquaint him that the city had been occupied by sailors, and that all was quiet.

At 2 p.m. General Ameglio's troops entered the city. With a kindly intention he had detailed the naval detachments, which had accompanied him, to the post of honour at the head of his troops. Shortly afterwards the Italian flag floated over the Governor's Palace, the ships fired a salute, and the crews shouted, "Long live the King." On the following days the disembarkation of stores from the transports continued. Rear-Admiral Presbitero's Division returned to Stampalia on the 6th. On the 7th, Rear-Admiral Corsi's Division reconnoitred the Gulf of Kos, and then returned to Stampalia. The First Division of the Second Squadron and some torpedo craft, with the "Coatit," remained at Rhodes.

At dawn, on the 12th May, the ships were distributed as follows:—"Vittorio Emanuele III." at Scarpanto; "Regina Elena" at Caxo; "Napoli" at Piskopi; "Roma" at Niseros; "Pisa" at Kalimnos; "San Marco" at Leros; "Amalfi" at Patmos.

Naval detachments were landed, and by mid-day all the Turkish garrisons, as well as the civil officials, had surrendered. At Scarpanto and Caxo, Turkish sovereignty was declared to be ended; that of H.M. the King of Italy was proclaimed, and the

Italian flag was hoisted. The ships left small garrisons and returned to Stampalia.

At 3 a.m., on the 18th, the "Regina Margherita" entered Marmarice, bombarded and destroyed the Turkish fort, and afterwards returned to Rhodes.

The Commander-in-Chief, having been informed of the intentions of the Government, and of the preparation of a military expedition in Rhodes for the occupation of Kos, sent the "Napoli," on the 21st, to collect information about the island. Having obtained it, the occupation was ordered without fail, and on the 22nd the "Napoli" disembarked landing parties in the city, and, capturing the garrison and civil officials, hoisted the Italian flag over the island.

During the whole of this period the ships made frequent visits in turn to the anchorages of the occupied islands.

On the 21st, the "Pisa" hoisted the Italian flag at Kalimnos and Leros, and on the 22nd, at Patmos, the people everywhere giving the ships and the crews a warm welcome. The torpedo craft reconnoitred continuously and carefully the Asiatic coast, and the auxiliary cruisers moved about to repress smuggling and to obtain information.

EVENTS IN JUNE, 1912.

On June 16th, with the object of occupying Misurata, one of the most important commercial centres in Libya, General Camerana's Division was landed at Bu-Sceifa. The disembarkation was carried out and protected by the Training Division, whose naval detachments, already famous for their dash and unwearied energy for work and valour in attack, fought on the flanks of the troops and repulsed on the same day a vigorous attack made by the enemy on the right wing of the Division, when it had landed.

On the 26th, the advance was begun from Macabez on Sidi Said. The march was followed on the flank by the torpedo-boats and other craft operating in these waters. These took part with their guns in the actions of Sidi Said on the 27th and 28th.

Meanwhile the "Vulcano" assisted in organizing the various services of the naval base at Stampalia. With stores from Italy, and with the aid of the personnel told off for duty, various look-out stations were established on the most commanding points of the island, which served for a thorough survey by day of the whole horizon, and by night of the approaches to the anchorages of the naval forces. Three batteries for anti-torpedo boat defence were constructed, sited to fire on the entrances to the anchorages. The defences were completed by the installation of three electric searchlight stations for illuminating the water area in the approach to the anchorage of the larger ships. A complete telephonic system was laid down, both on land and under water, connecting the look-out stations, the batteries, and

the searchlights. This defensive system, always ready for any eventuality, was supplemented continuously every night by an exterior service of security carried out by various torpedo craft.

At Maltezana, on shore, magazines for food supplies and a cattle depôt were formed for supplying the ships. Moorings were also laid down for the torpedo craft, and anchorages arranged for colliers and auxiliary ships, which always re-entered the harbour at Maltezana during the night, instead of remaining on the southern anchorage with the larger ships.

To this work of organization were added numerous and continuous cruises in the various islands, manœuvres, evolutions, and war exercises, either collectively or by single ships, which always maintained the ships and crews ready and vigorous for that trial with the enemy's fleet, which was vainly hoped for and ardently awaited by everyone.

EVENTS IN JULY, 1912.

On the night of the 18th-19th, a squadron of five torpedo-boats, the "Spica," "Perseo," "Centauro," "Climene," and "Astore," entered the Dardanelles. They were led by Captain Enrico Millo in the "Spica." In spite of the vigilance of the searchlights at the entrance, the squadron was not discovered, and ran about a mile-and-a-half up the Straits, when the "Astor," the last in the line, came under the beams of a light. A blank round gave the alarm, and was immediately repeated by the numerous look-out stations on both shores. A large number of searchlights illuminated the squadron, and the batteries opened fire. The boats increased their speed to 22 knots, hugged the European shore, and boldly continued their course towards the Kilid Bahr Chanak Straits. On reaching the Straits, 12 miles from the mouth, the "Spica," which was leading, struck one of the steel cables of the boom that had been fixed at that point. The torpedo-boats were then in view of the enemy's fleet, the ships of which were working their searchlights and opened a violent fire with their anti-torpedo armament, to which was added the heavy fire of the numerous shore batteries. Having ascertained the position of the Turkish squadron, convinced of the impossibility of torpedoing it, and certain of the complete destruction of the torpedo boats if the attempt were made, Captain Millo gave orders to return; this was carried out under a perfect tempest of fire, and with marked boldness and *sang froid* on the part of the commanders. The damage reported by the boats was insignificant.

During the same night the ships of the First Squadron were to the south-west of Tenedos, ready for any eventuality if any Turkish unit happened to come out.

EVENTS IN AUGUST, 1912.

On the night of August 4th, General Tassoni's brigade disembarked at Zuara, under the protection of the ships stationed

in Tripolitana. This was the last landing operation in which the Navy took part; the Cadets of the Naval Academy were present on board the "Etna," which fired on the enemy's trenches.

From August 22nd to Sept 5th, the Second Squadron, composed of the "Regina Margherita," "Ammiraglio di Saint Bon," "Emanuele Filiberto," "Giuseppe Garibaldi," "Francesco Ferruccio," and "Coatit," carried out a cruise on the coasts of Syria and Anatolia, visiting the coasts and ports of Jaffa, Haifa, Beyrout, Alessandretta, Latakia, Messina, Adalia, Castellorizo, and Rhodes.

EVENTS IN SEPTEMBER, 1912.

In the month of September the "San Marco" and "Amerigo Vespucci" assisted in the victory of Casr-el-Leben. The Second Squadron, under the orders of Admiral Amero, arrived off Smyrna on the 22nd, and in the evening anchored at Sighajik. On the 23rd it again returned to the Gulf of Smyrna and came under the fire of the forts, passing by Mytilene at sunset, with crews at their stations. It then visited in turn the islands occupied by the Italians, and returned on the 30th to Stampalia. The First Squadron returned to Italy during the first ten days of the month, and remained disposed as follows: First Division and the "San Marco" at Spezia; Second Division at Taranto.

During the month negotiations to establish the principal agreements for a treaty of peace assumed some importance. These came to an end on October 12th, until which date a definite conclusion of peace had seemed imminent, by Turkey advancing proposals unacceptable to Italy. Consequently the Royal Government ordered some units of the First Squadron, to hold themselves in readiness to sail, and despatched an ultimatum to Turkey.

On the afternoon of the 12th, the "Regina Elena," the "San Marco," and the "Espero" left for Spezia. At Taranto the "Pisa," "Amalfi," "San Georgio" and "Napoli" were held in readiness to sail. The "Espero" called en route at Naples to embark stores. The "Regina Elena" and the "San Marco" arrived at Messina early on the 15th, and after having embarked ratings, taken in stores, and coaled, left on the 18th directly for the Aegean. During the night a Ministerial wireless telegram announced that the preliminary agreements for peace had been signed during the afternoon, and that, therefore, the cruise of the Squadron in the Aegean was cancelled. The Commander-in Chief, with the "Regina Elena" and "San Marco," made for Taranto, and ordered the Second Division of the First Squadron, already en route to the Aegean, to repair to the same anchorage (Taranto). The whole of the First Squadron reached the Mar Piccolo on the 16th September.

THE YEAR 1912 IN FOREIGN ARMIES.

FRANCE.

MILITARY EXPENDITURE.

The military expenditure for 1912 was £37,109,945, being a decrease of £416,520. This total was made up as follows:—

	1911.	1912.	Difference.	
	£	£		£
Home Service Army	32,432,736	31,775,584	minus	657,152
Colonial Army	1,622,369	1,673,429	plus	51,060
Construction, Stores, etc.	3,471,360	3,660,932	plus	189,572
Total	37,526,465	37,109,945	minus	416,520

The Military Budget of the Colonial Office amounted to an additional £3,436,277, exclusive of the costs of the Maroccan campaign.

ORGANIZATION.

Composition of Army.—The Army consists of 20 army corps, 43 infantry divisions, and 42 cavalry brigades.[1] The normal composition of formations and units is: Two divisions in an army corps, two brigades in a division, two regiments in a brigade, three battalions in a regiment, and four companies in a battalion.

Note.—At end of December, 1912, a new *Loi des Cadres* was passed for the infantry; and one for the cavalry was before Parliament; another one for the Engineers was to be introduced shortly. The infantry law had not yet come into operation.

Peace Establishment.—The Peace Establishment was as follows: Infantry, 387,843;[2] cavalry, 73,369; artillery (officers and men), 97,571; field guns, 2,700; other arms and departments, 58,821. Total, 617,604.

Staff Organization.

Reorganization of the General Staff.—A decree of 20th January abolished the post of Chief of the Staff of the Army, and divided the Staff into three groups, but on February 14th a further decree reorganized the Staff, which is now arranged as follows:—

(*a*) The Staff of the Army is placed under the direction of a General Officer chosen from among the members of the

[1] Made up as follows: Eight Independent Cavalry Divisions, consisting of 18 Brigades. With Army Corps, 20 Brigades. In Algeria and Tunis, four Brigades.

[2] Including *Gendarmerie*, 21,997; *Garde Républicaine*, 2,993; Saharan Troops, 1,005.

Superior Council of War. This officer is designated Chief of the General Staff of the Army. He is assisted in his duties by two *sous-chefs*, who are selected from the Generals of Division. The first *sous-chef* is the Chief Staff Officer designate of the Commander of the principal group of armies in time of war. The second *sous-chef* will remain with the Minister for War in the event of mobilization, and takes over all staff duties in connection with those forces which are employed on active service. He will be the principal military adviser of the War Minister during the absence of the Chief of the General Staff in time of war.

(*b*) The Staff of the Army is sub-divided into two groups under the direct control of two *sous-chefs*.

The first group deals with everything in connection with the preparation for war.

The second group deals with general routine in time of peace, and in time of war all problems of organization, both of materiel and personnel; as well as questions appertaining to those portions of the Army which are not in Europe.

SECRETARY GENERAL.—A Secretary General was instituted in January, who, in the name of the Minister for War, supervises the higher administration of the Army and co-ordinates the work of the various bureaux. In the absence of the War Minister he presides over those meetings which were formerly presided over by the Chief of the Staff.

REORGANIZATION OF THE HIGHER COMMAND.—Owing to the creation of the Secretary General to the Minister for War, a new distribution of the War Office was made as follows:—

1. Cabinet of the Minister for War.
2. Secretariat General.
3. Staff of the Army.
4. Directorates of (*a*) Control, (*b*) Legal Affairs and Military Law, (*c*) Interior Service, (*d*) Infantry, (*e*) Cavalry, (*f*) Artillery, (*g*) Engineers, (*h*) Intendance, (*i*) Explosives, (*j*) Medical Services, (*k*) Colonial Troops.

SUPERIOR COUNCIL OF NATIONAL DEFENCE.—In July the Council of National Defence was reorganized as follows:—

President: The President of the Council of Ministers.

Members: The Minister for Foreign Affairs; the Minister of Finance; the Minister for War; the Minister of Marine; the Minister of Colonies.

Various officers and officials are summoned to the meetings of the Council when their advice is required. The Council is obliged to meet at least twice a year, and may be summoned by its President at other times. An Expert Section is attached to the Council, composed of the heads of the bureaux, which deal

with military operations, naval operations, and colonial matters; this section prepares all matters which are to be laid before the Council.

WAR COUNCIL.—The Council of War is presided over by the Minister for War, and is composed of the Chief of the General Staff of the Army and ten Generals of Division. This Council must be consulted on all matters affecting the general organization of the Army; methods of training, etc.; mobilization; plans of concentration; proposed ameliorations in communications; new weapons and materiel; creation or suppression of forts; coast defence.

If any subject dealing with Northern Africa is under consideration, the General Commanding the XIXth Army Corps must be consulted. The Council meets once a month on principle, and oftener if considered necessary. The President of the Republic may, if he considers it advisable, preside at the meetings, and he is empowered to summon a meeting. The Council is specially concerned with all questions in connection with the preparation for war.

CHANGES IN PERSONNEL.—The following appointments were made during the year:—

War Office: Monsieur Millerand, Minister for War; Monsieur Rousseau, Secretary-General of War Office; Colonel (now *Général de Brigade*) Hirschauer, Inspector-General of Aeronautics.

Marocco: General Lyautey, Resident General in Marocco.

Army Corps (Commanders): Vth, General Brochin; VIth, General D'Amade; VIIIth, General Foch; IXth, General Dubail; Xth, General Sordet; XIth, General Lanrezac; XIIIth, General Ruffey; XVIIIth, General de Mas Latrie; XIXth, General Moinier.

Paris (Military Governor), General Michel; Indo-China, Commandant of Troops, General Lefevre.

General Langlois, formerly member of the Superior Council of War, Senator and Member of the Academy, died in the month of February, 1912, at the age of 72.

NEW RANK FOR N.C.O.'S.—A new rank for N.C.O.'s was instituted, known as *adjudant-chef,* with a view to ameliorating the conditions of re-engaged N.C.O.'s, and to fill up the gaps caused by a deficiency of lieutenants in the various branches of the Army. The number of *adjudant-chefs* prescribed for the year was: Infantry, 420; cavalry, 89; artillery, 149; engineers, 20; train, etc., 60; colonial troops, 46.

ARMS AND DEPARTMENTS.

Artillery.

ARMAMENT.—It was decided in November to re-arm the Horse Artillery with a new quick-firing gun, made by the Creusot firm of gunmakers.

COAST AND FORTRESS ARTILLERY.—A new organization of the coast and fortress artillery came into operation on 1st April, 1912, the distribution was then as under:—

Army Corps.	Regiment.	Garrison.	Batteries.		
			Fortress.	Coast.	Total.
I.	1	Dunkirk	—	3	
		Calais	—	1	
		Boulogne	—	1	
		Maubeuge	2	—	
					7
X. & III.	2	Cherbourg	—	7	
		Havre	—	2	
					9
XI. & XVIII.	3	Brest	—	3	
		Belle Île	—	1	
		Île de Ré	—	1	
		Île d'Aix	—	1	
					6
Paris	4	Paris	4	—	
XI.	4	Lorient	3	—	
					7
VI.	5	Verdun	9	—	
		Forts of Liouville, Romaine, Gironville, Troyon.	1	—	
		Montmedy	1	—	
		Longwy	1	—	
VII.		Langres	1	—	
					13
XX.	6	Toul	7	—	
		Frouard	1	—	
		St. Vincent	1	—	
		Manonviller	1	—	
VII.		Pagny	1	—	
		Besançon	1	—	
					12
XV.	7	Nice	2	1	
		Ajaccio	—	1	
		Bonifacio	—	1	
					5
VII.	8	Epinal	6	—	6
	9	Belfort	7	—	7
XV.	10	Toulon	—	6	
		Porquerolles	—	1	
		Marseilles	—	2	
					9
XIV.	11	Tournoux	1	—	
		Briançon	3	—	
		Grenoble	1	—	
		Vulmis	1	—	
		Albertville	1	—	
		Modane	1	—	
					8
XIX.	6th *groupe*	Algiers	—	2	
		Oran	—	1	
		Philippeville	—	1	
					4
	7th *groupe*	Biserta	—	4	4
		Totals	57	40	97

ARTILLERY APPOINTMENTS.—The following appointments were created:—

(1) An Inspector-General of Studies and Technical Experiments of the Artillery.

(2) A Technical Inspector of Siege and Fortress Artillery.

(3) A Technical Inspector of Coast Artillery.

(4) A General Officer of Artillery origin, nominated annually, to inspect (in addition to his ordinary duties) the instruction given at the senior officers' artillery course at the camp de Neuilly, and at the six regional courses for battery commanders.

Engineers.

TECHNICAL INSPECTORATES.—Two Technical Inspectorates were instituted, one for the fortress engineers and the other for the coast engineers. The Inspectorates are chiefly concerned with ensuring that the units receive instruction suited to the duties which they would be called upon to perform in case of mobilization, and that all new buildings, and so forth, are being modelled in accordance with the plans approved of by the Ministry of War. Each year, a General Officer of Engineer origin is designated by the Minister for War to make a technical inspection of engineer troops, exclusive of railway and telegraph units.

Medical Services.

MEDICAL COMMITTEE.—The Medical Committee, known as the *Comité technique de santé* is now re-named the *Comité consultatif de santé*. It is composed of eleven members, eight of whom are Inspectors-General (medical) of the Metropolitan Army, two of the Colonial Army, and the "*Pharmacien Inspecteur de Santé Militaire.*"

A decree, dated 7th August, 1912, instituted "*La section technique du service de santé*," which is directly responsible to the War Minister.

AERONAUTICS.

GENERAL.—During the year the Aeronautical Corps was formed into the fifth arm of the service, and received on the 14th July its colours as a distinct unit.

A law, dated the 30th March, 1912, was unanimously passed by the Chambre and the Senate, laying down the rules for the guidance of the military authorities, the following being the principal points:—

1. The Aeronautical Corps is responsible for the study, purchase or construction, and the keeping up of all aerial appliances appertaining to the Army, *e.g.*, balloons, dirigibles and aeroplanes; the administration, training and mobilization of the corps devolves on the military authority.

2. The corps consists of: (*a*) airmen; (*b*) troops; (*c*) establishments; all of which are under the authority of the Inspector-General of Aeronautics.

3. The airmen consist of officers, N.C.O's and men, selected from the ranks of the Army, and who are seconded.

4. The Minister for War is responsible for the organization of the corps into the number of units considered the most suitable.

EFFECTIVES.—The total number of officers and non-commissioned officers seconded in accordance with the law of 29th March, was 165 officers and 180 non-commissioned officers.

INSPECTOR-GENERAL.—General Hirschauer is the Inspector-General of the Aeronautical Corps, with headquarters in the Ministry for War at Paris, being assisted by Colonel Romazotti as *sous-chef*, and seven certificated officers as his staff.

Organization.

The corps was further organized by being formed into three groups, the first being at Versailles, the second at Reims, and the third at Lyons. The following are the details of the three groups:—

FIRST GROUP: VERSAILLES.

Supplying the requirements of the Ist, IInd, IIIrd, IVth, Vth, IXth, Xth, XIth Army Corps and the troops in Marocco and Tunis.

Central Portion.	Detached Sections.
1st Company (airship).	11th Section at Chalais-Neudon.
2nd ,, (,,).	12th ,, ,, Douai.
3rd ,, (aeroplane).	13th ,, ,, Etampes.
9th ,, of Conductors.	

SECOND GROUP: REIMS.

Supplying the VIth, VIIth, and XXth Army Corps.

Central Portion.	Detached Sections.
4th Company (airship).	21st Section at Chalons.
5th ,, (,,).	22nd ,, ,, Verdun.
6th ,, (aeroplane).	23rd ,, ,, Toul.
	24th ,, ,, Epinal.
	25th ,, ,, Belfort.

THIRD GROUP: LYONS.

Supplying the VIIIth, XIIth, XIIIth, XIVth, XVth, XVIth, XVIIth, XVIIIth, and XIXth Army Corps.

Central Portion.	Detached Sections.
7th Company (aeroplane).	31st Section at Camp d'Avor.
	32nd ,, Pau.

GROUPS.—Each of the three groups is commanded by a Colonel or Lieutenant-Colonel, assisted by a staff of seven officers (of whom one is a doctor), and 31 non-commissioned officers and men.

In the Colonel of a group are vested the powers of a *chef de corps*; he is concerned with the inspection of the "centres" and detachments under his command with a view to ensuring that all instruction carried out is efficiently and prudently done, and that the establishments, workshops, and aeronautical materiel are kept in good order. He is in direct communication with the Inspector-General, and suggests to him any changes among the officers serving in his group, which he considers desirable in the interests of the service; he is empowered to make changes among the men without referring to the Inspector-General, but must submit to him his recommendations for promotion of men to the non-commissioned ranks, the rank of adjutant and *adjudant-chef*.

COMPANIES.—Each company consists of three officers, 26 non-commissioned officers, and 82 men, the Company of Conductors totalling three officers, 25 non-commissioned officers, and 102 men.

AVIATION GROUNDS AND CENTRES.—There are numerous civil aviation grounds in France, and, as a rule, the military ones adjoin the civil ones; in accordance with the official programme, the following 14 centres, 11 aviation grounds, and six coast centres, are to be established, of which those named below may be regarded as, if not absolutely completed, at any rate, available as aviation centres.

Army Corps.	Aviation Centre.	Flying Ground.	Coast Centre.
I.	Douai and depôt at Maubeuge	—	Dunkirk.
II.	—	(a)	—
III.	—	—	Havre.
IV.	—	(a)	—
V.	Etampes	(a)	—
VI.	Chalons, Reims, and Verdun	—	—
VII.	Epinal and Pontarlier depôt at Belfort.	—	—
VIII.	Camp d'Avor	—	—
IX.	—	(a)	—
X.	—	(a)	—
XI.	—	—	Nantes.
XII.	—	(a)	—
XIII.	Clermont-Ferrard	—	—
XIV.	Lyon	(a)	—
XV.	—	—	Marseilles and Nice.
XVI.	—	(a)	—
XVII.... ...	Toulouse (?)	(a)	—
XVIII. ...	Pau	—	Basse-Gironde.
XX.	Toul	—	—
Govt. of Paris	Versailles	—	—
Algeria ...	—	Biskra, Blida, and Sud-Oranais.	—
Total ...	14 centres	11 Flying grounds.	6 Coast centres.

(a) To be determined upon in course of time.

CENTRES.—Each centre is commanded by a Captain or Lieutenant, assisted by a staff of seven N.C.O.'s and 50 men. The Captain is responsible for the training and mobilization of all units in his centre, including any detached *escadrilles* (of aeroplanes) or *equipages* (of dirigibles), as the case may be. He informs the Colonel in charge of the group of any officers or men who do not appear to possess the requisite aeronautical aptitude; any accidents which may happen are immediately telegraphed by him to the Colonel of the group, the General in command of the Army Corps, in whose region the centre is situated, and to the Inspector-General.

A depôt and workshops are attached to each centre; every military flying ground receives daily the official meteorological weather report; a doctor is always in attendance at the aviation grounds when flying takes place, and an ambulance is invariably kept ready at some point selected by the officer in charge of the flying ground.

SPECIAL ESTABLISHMENTS.—Five special establishments were inaugurated under the direct control of the Minister for War, these being a directorate of materiel, a central establishment of materiel, a laboratory of military aeronautics, a laboratory of aerology and telephotography, all at Chalais-Neudon, and a laboratory of aviation at Vincennes.

Tactical Organization.

For manœuvres and on mobilization, the aeroplanes are organized into *escadrilles,* the commanders of the *escadrilles* being chosen from among those officers who are considered to have the best technical and tactical aptitude. The *escadrille* of peace time gives birth on mobilization to one or more like units. The escadrille is the tactical unit, and is composed of three sections and a reserve section.

Each section has:—

Two aeroplanes.

Two *tracteurs,* carrying spare parts of the lighter sort.

Two *remorques* (trailers), in which the aeroplane can be carried when dismantled, the *remorques* being drawn by the *tracteurs.*

The *escadrille* has also one motor car and one motor bicycle.

One automobile workshop in which all repairs can be carried out, and which, together with some four or five canvas shelters, constitutes the parc; this parc is usually stationed near the line of communications.

New Formations.

The units to be created during 1912, according to the official programme, were :—

Twenty-seven service *escadrilles* of eight aeroplanes each (of which two are in reserve), making a total of aeroplanes	216
Ten sections for the Cavalry Divisions, each section having three aeroplanes	30
Eleven *escadrilles* for fortresses and coast defences, each *escadrille* having eight aeroplanes	88
Total	334

The cost of these units, allowing for the purchase of additional aeroplanes for some of the units was estimated at £324,000.

Materiel.

DIRIGIBLES.—There are 14 dirigibles in existence, *viz.*: "Adjudant Vincenot" (which met with a serious accident in November), "Adjudant Reau," "Lieutenant Chaure," "Dupuy de Lôme," "Commandant Coutelle," "Spiess," "Capitaine Marchal," "Selle de Beauchamp," "Capitaine Ferber," "Conte," "Fleurus," "Liberté," "Temps," and "Colonel Renard."

AEROPLANES.—According to the official programme, there should be at the end of 1912, 334 aeroplanes, of which 30 are three-seaters, 160 two-seaters, and 144 single-seaters.

Aeronautical Transport.

Each service escadrille is supplied with automobile transport, consisting of six *tracteurs*, six *remorques*, three heavy automobiles, one automobile workshop, and one car for the officer; the cost of this transport is estimated at 278,500 francs, or £11,140, per *escadrille*, making a total expenditure of about £300,000 for the transport of the 27 *escadrilles*.

The transport of the cavalry sections consists of two *tracteurs*, two *remorques*, one heavy automobile, and one light automobile; the expense of this transport is estimated at 91,500 francs, or £3,660, per section, making a total expenditure of £36,600 for the ten sections.

The transport of the escadrilles at the fortresses and for coast defences consists of two automobiles, no *tracteurs* or heavy automobiles for spare parts being considered necessary, as these are kept in the fortresses. The expense of the two automobiles and the spare parts is estimated at 93,600 francs, or £3,744, per *escadrille*, making a total of £41,184 for the 11 *escadrilles*.

The total number of vehicles, exclusive of the *remorques*, amounts to 359 light, medium, and heavy cars, the cost of which is estimated at 9,464,100 francs, or £378,564.

Expenditure.

Very large sums are being spent on aeronautics, as is evidenced by the following items proposed by the military authorities, being exclusive of the pay of the personnel:—

For Aerostation.

Year.	£
1912	120,000
1913	400,000
1914	160,000

For Aviation.

Year.	£
1912	918,000
1913	1,000,400
1914	1,041,000
1915	1,033,000

For aviation schools and centres a sum of £452,000 was agreed upon; some of this money has been spent in previous years, leaving the following amounts to be expended:—

Year.	£
1912	158,000
1913	158,000
1914	108,000

Civilian Aeronautics.

The *Comité National pour l'aviation militaire,* has, under the guidance of its President, Senator Reymond, done much to promote aviation. Up to the 1st October the voluntary subscriptions collected amounted to 3,223,473 francs, or £128,940. Out of this sum 91 aeroplanes have either been bought or are in process of construction, the average price paid being 15,000 francs each, or £600, whilst certain sums have been set aside by the Committee as "endowments" to help young men financially to obtain their certificates of aviation prior to their joining the Army. A scheme is also in hand by which it is hoped that the Committee will be able to supply the Army with a "ready-made airman" for every monoplane bought by voluntary subscription, and eventually it is hoped that certain municipalities will similarly supply every year a ready-made airman to the Army.

It is estimated that there are about 1,000 aeroplanes existing in France.

The *Comité National pour l'aviation militaire* received the sanction of the War Minister to organize a first zone of 32 land-

ing stations, principally in the east and north of France; many of these are completed and the remainder are under construction, and 30 more are under consideration.

TRANSPORT.

SUBSIDIES FOR MOTOR VEHICLES.—A ministerial decree determined the sums of money to be allotted to proprietors of automobiles, both for the upkeep of the same and with a view to encourage firms to build automobiles suitable for military purposes.

The system is as follows: The military authorities lay down certain patterns of cars, giving the sizes, weights, etc. Subsequently meetings are held at various centres in France, at which the cars are put through a somewhat severe test; the successful competitors are given a *prime d'achat,* or sum of money, varying from £80 for a car carrying 2,000 kilos, to £120 for one carrying 6,000 kilos, a further sum being paid annually for the upkeep, ranging from £40 to £60.

The Government retains the right to employ these cars on military duties in peace time as well as on mobilization. They are periodically inspected by regional committees of officers, with a view to ensuring that the original requirements prescribed have been adhered to.

The system is popular, as evidenced by the fact that there are about 1,000 of these "registered" cars in France, and that their number is to be increased.

Most of the cars are fitted with hooks and chains, so that, on emptying out their loads or stores, they can be utilized as ambulance wagons (carrying eight stretchers) for the transportation of wounded men to the rear.

EDUCATION.

AGE FOR ADMISSION TO STAFF COLLEGE.—New regulations were issued with regard to the age at which officers may enter the Staff College, the limit of age being laid down at 37 years; this regulation comes into force in 1913.

ARTILLERY AND ENGINEER OFFICERS.—The supply of officers for the artillery and engineers, which has hitherto been organized from: (*a*) the *École d'application de l'artillerie et du génie,* at Fontainebleau, and (*b*) the *École militaire de l'artillerie et du génie,* at Versailles, has been altered. It is considered that nowadays the duties of the artillery and engineer branches have become so distinct that it is advisable to have one school for the artillery branch and another for the engineer branch; with this object in view it has been decided to reorganize the two *écoles d'application* as follows:—

(1) *École Militaire de l'artillerie,* at Fontainebleau.
(2) *École Militaire au génie,* at Versailles.

MANŒUVRES AND TRAINING.

Brigade manœuvres, lasting ten to eleven days, were held by the VIIth, VIIIth, XIIth, XIVth, XVth, XVIIth, and XVIIIth Army Corps. Special manœuvres were also held in the Vosges, the Alps, Algeria, Tunis, and on the eastern frontier.

Divisional manœuvres, lasting about a fortnight, were held by the Ist, IInd, IIIrd, VIth, XIIIth, XVIth, and XXth Army Corps.

Combined cavalry manœuvres, lasting eight days, were held by (*a*) the 4th and 5th Divisions and a Provisional Division; (*b*) the 3rd Division and a Provisional Division; (*c*) the 2nd, 6th, and 8th Divisions, and a Provisional Division.

The Grand Army Manœuvres, in which four army corps, two divisions of cavalry, a combined division of colonial and alpine troops and *chasseurs*, and (for the first time) a division of reservists took part, were held in September. The newly-organized Aeronautical Corps was extensively employed, each side being allotted four complete *escadrilles*, in addition to one airship.

DISCIPLINE.

PUNISHMENTS.—Soldiers who are condemned to death by Court Martial for non-military crimes, are in future to be guillotined instead of being shot.

Power to inflict punishment on soldiers up to sixty days' imprisonment, including eight day cells, has been delegated to General Officers Commanding Army Corps and Divisions.

In order to send a soldier to one of the disciplinary sections, it was formerly necessary to obtain the authority of the Minister for War; as this system was the cause of long delay as regards units stationed out of France, this authority has been delegated to (*a*) the General Commanding the XIXth Army Corps; (*b*) the General Commanding the troops in Tunis; (*c*) the General Commanding the Division at Oran. General Officers Commanding in Marocco are accorded the same authority.

The power of awarding punishments has been restored to the lower ranks from lieutenants to corporals inclusive, but, in order to avoid an abuse of this power by corporals, punishments awarded by them have to be confirmed by an officer.

OFFICERS WRITING TO THE PRESS.—Officers who wish to publish articles in the Press must send a copy of the article to the "*chef*" of the corps to which they belong; they are not permitted to sign their names or give their official designations.

CONFIDENTIAL REPORTS.—The system of annual confidential reports on officers has been slightly altered; formerly, each officer was shown his report and was called upon to initial it; it is now considered that the reports have become of such a uniform character that they are not in reality of much assistance

to the Minister for War; henceforth it will not be obligatory to show officers their reports. The Inspecting Generals will, during their inspections, in future, go through the annual reports of each officer, make themselves acquainted with each officer, and inform him both as regards his good points and his bad points; in reality, he will encourage the good officer and warn the bad officer. If an officer finds his promotion retarded, he may demand, through the official channel, to be shown his report.

OFFICERS' MESSING.—With a view to improving the cameraderie among the officers of the various units, and to prevent cliques being formed, it was decided that all officers up to rank of lieutenant who are unmarried are to feed together, the expenses being divided equally, and assessed at a rate in accordance with the pay of the junior officers; the Lieutenant-Colonel of the unit to supervise the arrangement.

EXCLUSION FROM THE ARMY.—A law was passed prohibiting from entering the Army, such persons who have been awarded three months or more imprisonment for inciting to mutiny, conspiring to sedition, or insubordination, and so forth.

The following recruits are to be incorporated in the African Light Infantry: Men who have been awarded six months' imprisonment for wounding or violence; men who have been awarded one month for outrage against the public morals, theft or swindling.

RECRUITING.

THE LEVY OF 1912.—The contingent for 1912 was about 230,000 men, of whom 218,000 were incorporated in the combatant ranks; deducting from this total 2,000 men for the Navy, there remained approximately 216,000 men for enrolment in the Army, which was an increasement of about 10,000 men as compared with the contingent of 1911.

The contingent was incorporated in the various branches of the Army as follows:—

	Contingent of 1912.	Contingent of 1911.
Infantry	150,840	143,135
Cavalry	20,855	18,595
Artillery	32,260	32,705
Engineers	6,370	5,975
Air Corps	700	nil[1]
Train, etc.	4,465	5,345
Total ...	215,490	205,755

COMPULSORY SERVICE, ALGERIA.—By decree, dated 3rd February, compulsory service was introduced for the natives in Algeria, the period of service being three years in the Active

[1] The Air Corps formed part of the Engineers up till 1912, in which year it became a separate branch of the Army.

Army, and seven years in the Reserve, the selection being by ballot and substitution being permitted; the number of recruits is to be fixed annually by the Minister for War.

UNIFORM AND EQUIPMENT.

UNIFORMS.—The late Monsieur Detaille, the artist, was asked to design some new uniforms, which should be both artistic and serviceable. Some patterns were on trial during the year, but were not approved of by any of the Press. They had neither the appearance of being artistic nor did they possess the advantages of being "invisible."

It was decided in November not to adopt the uniforms under trial, but to modify in small ways the uniform at present in use, as follows: The red trousers to be continued; the great coat to be of bluish grey, a blue-grey waterproof cover to be supplied for the kepi; the gaiter at present in use to be worn by the infantry, with the exception of the *Chasseurs Alpins*, who are to wear putties; the knapsack to be considerably lightened and to be of softer material; the canteen and haversack to be suspended from the waistbelt.

It is considered that the great coat of blue-grey colour being worn over the red trousers, will be sufficiently invisible for all practical purposes. The question of a head-dress is expected to be settled by the time the present stock of kepis is worn out.

FIELD GLASSES.—Army Order of the 1st October, 1911, laying down that it was obligatory for officers to provide themselves with prismatic field glasses, was rescinded. A suitable number of field glasses will be provided by Government to each unit for use on service, and officers are expected to provide themselves with a "useful" pair of field glasses in peace time as a part of their equipment.

FORTRESSES.

DECLASSEMENT.—A law was approved sanctioning the *déclassement* of the following forts:—

Pagny la Blanche, south of Toul; Bourlemont, west of Neuchatel; Hirson; Curgies, near Valencienne; Naulde, near Valencienne; Flines, near Valencienne; Conde sur Aisne; Laon (town of); La Fere (surroundings of).

COMMANDANTS.—Owing to the special nature of the places of Paris and Lyons, the following appointments were made: Paris, a General of Division, styled, "*Général adjoint au Gouverneur Militaire.*" Lyons, a General of Division, styled "*Commandant de la place de Lyon et Commandant supérieur de la défence.*"

MILITARY OPERATIONS.

MAROCCO.—There was a good deal of unrest and fighting in Marocco during the earlier portion of the year, but under the able management of General Lyautey, the Resident-General, the

state of the country has considerably improved. Reinforcements were sent to Marocco, which brought the total force up to a strength of about 50,000 men of all arms in August, when the Resident-General determined to divide the country up into four independent military districts, each district having its own garrison and flying column; the four districts organized on these lines were Fez, Mekhnes, Rabat, and Shawia, the towns of Fez, Mekhnes, and Rabat being the headquarters of the first three districts respectively, and Marakesh the headquarters of the latter.

General Lyautey arrived in Paris in December, on leave of absence from his duties in Marocco, and gave a statement of the Moroccan situation before a Commission of the Chambre, the following being the principal points to which he referred:—

(1) He continued to receive reassuring reports from General Gouraud since his departure.

(2) He explained in concise terms the method he had adopted for the pacification of the country and the disposition of the troops, which, by radiating somewhat after the formation of a large cobweb, had given the natives the impression of great strength.

(3) Unless something unforeseen occurred, he considered it would not be necessary to call for a fresh contingent from the mother country, and, in fact, he hoped next year to be able to send home a portion of the European troops and to replace them by native troops from West Africa. At the same time, he laid great stress on the importance of having a sufficiency of troops to ensure the subjection of the country, and to dispel any idea the natives might harbour of awaiting an opportunity to attack a weak force.

(4) He was of opinion that the economical organization of Marocco should be pushed forward by opening up the country, making roads, constructing railways, and establishing schools and hospitals, etc., all of which he would prefer to see placed under military superintendence, for reasons of economy; he proposed to start at once with native schools, and to connect up the railway between Fez, Taza, and Algeria.

(5) The Moroccan Budget of £640,000 is approximately balanced by the normal resources of the country, and, counting on an augmentation of the proceeds from the douanes, this should pay the interest on money borrowed for the construction of railways and other public works, respecting which he is in consultation with Monsieur Klotz, Minister of Finance.

(6) Mulai Yussef, the new Sultan, has great sympathy with France, and being much beloved by his people, uses his influence in support of French interests; the Caids are educated men, who read and take an interest in the French newspapers.

General Lyautey ended with a few words of eulogy on Generals Alix and Gouraud and Colonel Mangin, to whose initiative and brilliant tactics he considered the satisfactory state of the country to be mainly due.

NAVAL NOTES.

HOME.

The following are the principal appointments, promotions and retirements, for January:—

APPOINTMENTS.—Rear-Admiral Sir H. B. Jackson succeeded Rear-Admiral E. C. Troubridge, as Chief of the War Staff, on January 6th; Rear-Admiral A. H. Christian succeeded Rear-Admiral H. L. Tottenham as Rear-Admiral in the Home Fleet, Devonport, on January 5th, hoisting his flag in the cruiser "Roxburgh"; Rear-Admiral D. R. S. De Chair succeeded Rear-Admiral David Beatty as Naval Secretary to the First Lord of the Admiralty, to date January 9th; Rear-Admiral T. H. M. Jerram succeeded Admiral Sir A. L. Winsloe as Commander-in-Chief, China Station, on January 25th, with the acting-rank of Vice-Admiral; Rear-Admiral the Hon. Sir A. E. Bethell succeeded Vice-Admiral Sir H. B. Jackson in command of the Royal Naval War College, Portsmouth, on January 28th.

PROMOTIONS.—Captain F. C. T. Tudor, A.D.C., to Rear-Admiral, to date January 14th; Captain C. L. Napier, A.D.C., to Rear-Admiral, to date January 25th.

RETIREMENTS.—Rear-Admiral E. R. Le Marchant, to date January 14th; Rear-Admiral H. Lyon, to date January 25th; both at own request.

H.M.S. "Exmouth" paid off at Portsmouth on the 16th ult., and has been sent to Malta to undergo refit.

H.M.S. "Albemarle" commissioned at Portsmouth on 17th ult., with crew of "Exmouth" for service in Fourth Battle Squadron.

The cruiser "Good Hope" was paid off at Portsmouth on 23rd ult., and recommissioned the following day for service in the Third Fleet at Portsmouth.

The "Endymion" was commissioned at Queenstown on the 6th inst., with a Third (nucleus) Fleet complement, the crew being drawn from the battleship "Hood," for service at Queenstown in the training squadron for boys which is to be based shortly at that port; the "Hood" being paid off the same day and remaining at Queenstown pending further orders.

The third-class cruiser "Proserpine," which has been refitting at Malta Dockyard since paying off from the East Indies, is to be commissioned at Malta and is to take the place of the third-class cruiser "Barham" in the Mediterranean Fleet, the "Barham" being paid off at Malta and placed in the Matérial Reserve in charge of caretakers.

CRUISER SQUADRON RE-NAMED.—The Admiralty have re-named the Cruiser Squadrons. The present First Cruiser Squadron will henceforth be known as the First Battle Cruiser Squadron; the battle cruisers in the Mediterranean become the Second Battle Cruiser Squadron; the armoured cruisers in the Mediterranean become the First Cruiser Squadron; the armoured cruisers in the Home Fleets are to remain, as at present, the Second and Third Cruiser Squadrons.

THE TRAINING SQUADRON.—It is officially announced that the present training squadron, consisting of the cruisers "Leviathan," "Donegal,"

" Berwick," and " Royal Arthur," is to be abolished and a new one formed of the following eight ships of the " Edgar " class, which will in future be based on Queenstown :—" Endymion," " Crescent," " Edgar," " Hawke," " Royal Arthur," " Gibraltar," " Theseus," and " Grafton."

FEARED NAVAL LOSS IN PERSIAN GULF.—It is officially announced that a cutter is missing from H.M.S. " Perseus." The boat, containing eight seamen and an interpreter, and under the command of a lieutenant, was dropped near Shaikh Shuaib Island in the Persian Gulf, on the afternoon of the 16th January, carrying provisions for 14 days and water for 12 days, with orders to remain till picked up or, if necessary, to shelter at certain places. She was last seen by natives on the morning of the 18th, proceeding to sea. On that day a strong easterly wind prevailed, which changed at 8 p.m. to a westerly gale, subsiding at noon on the 20th. The boat was missed by the " Perseus " on the 23rd, and on the 24th a systematic search was begun along the coast and neighbouring islands by the " Perseus," " Espiegle," " Karanja," and " Odin." The Commander-in-Chief has telegraphed, " Regret very little hope. Search not yet complete on Oman coast."

HEALTH OF THE NAVY FOR 1911.—The returns for the total force for the year 1911, as given in the Annual Report on the " Health of the Navy " for 1911, show a continuous improvement in the general health of the Fleet as compared with the preceding five years. The case, invaliding and death ratios for the year under review are again lower than the average ratios for the last five years, and the average loss of service for each person compares favourably with the five years' ratio, and with that of 1910.

The total force, corrected for time, in the year 1911, was 117,100, and the total number of cases of disease and injury entered on the sick list was 76,463, which gives a ratio of 652.97 per 1,000, a decrease of 26.96 as compared with the average ratio for the preceding five years.

The number of entries per man for disease and injury was—Home Station, .76; Home Fleet, .56; Atlantic Fleet, .63; Mediterranean, .67; North America and West Indies with Fourth Cruiser Squadron, .56; China, .64; East Indies, .87; Australia, .78; Cape of Good Hope, .67; Irregular List, .73. For the total force the average was .65, which is identical with the average for 1910.

The average number of men sick daily was 3,170.33, giving a ratio of 27.07 per 1,000, a decrease of 1.00 in comparison with the previous five years. The total number of days' sickness on board and in hospital was 1,157,172, which represents an average loss of service for each person of 9.88 days, a decrease of .36 as compared with the average for the preceding five years.

The ratio per 1,000 of men sick daily on the various stations was—Home Station, 35.85; Home Fleet, 23.36; Atlantic Fleet, 23.7; Mediterranean, 25.11; North America and West Indies and Fourth Cruiser Squadron, 19.84; China, 24.43; East Indies, 31.3; Australia, 23.39; Cape of Good Hope, 22.54; and the Irregular List, 40.32. For the total force the ratio was 27.07. The North America and the West Indies Station, as in 1910, shows the lowest sick rate, and the Irregular List again shows the highest.

The total number invalided was 2,110, which gives a ratio of 18.01 per 1,000, a decrease of 1.81 in comparison with the average ratio for the preceding five years. The total number of persons *finally* invalided was

1,867, of whom 71 were invalided after refusing operative treatment. The ratio per 1,000 of *final* invalidings was 15.94, a decrease of .5 as compared with the average for the previous five years. Of the 2,110 invalidings, 1,970, or 16.82 per 1,000, were for disease, and 140 or 1.19 per 1,000, for injury.

In comparison with the average ratio of the previous five years, the ratio per 1,000 of force invalided has decreased in the Atlantic Fleet from 20.8 to 18.06; in the Mediterranean, from 23.17 to 15.66; North America, and West Indies, from 17.62 to 14.15; China, from 20.01 to 12.2; Cape of Good Hope, from 15.17 to 10.18; Irregular List, from 18.33 to 10; and in the Home Station, as compared with the average of the previous three years, from 26.31 to 25.9. On the other hand, the Home Fleet shows an increase, as compared with the average ratio for three years, from 14.59 to 14.65; Australia and the East Indies, as compared with the average for five years, from 14.31 to 16.23, and from 32.46 to 36.52 respectively.

The total number of deaths was 366, giving a ratio of 3.12 per 1,000, a decrease of .23 in comparison with the average ratio for the last five years. Of this number, 260, or 2.22 per 1,000, were for disease, and 106, or .9 per 1,000, for injury.

In comparison with the death ratio of the preceding five years the ratio per 1,000 has decreased from 2.69 to 2.04 in the Atlantic Fleet; from 3.1 to 1.74 in the Mediterranean; from 4.51 to 3.75 in China; from 4.26 to 3.76 in Australia; and, in comparison with the ratio of the preceding three years, from 3.35 to 3.24 in the Home Station, and from 3.07 to 2.72 in the Home Fleet. The ratio has risen, however, in comparison with the ratios of the preceding five years, from 3.21 to 3.59 in the North America and West Indies; from 8.76 to 10 in the East Indies; from 2.36 to 5.55 in the Cape of Good Hope; and from 4.02 to 8.75 in the Irregular List.

A table will be found in the Medical Statistical Returns of the total force showing the ratios per 1,000 of force of all cases of disease and injury entered on the sick list, invalided and dead, on the various stations throughout the year.

Royal Australian Navy.

H.M.S. "PIONEER" TRANSFERRED.—The third-class cruiser "Pioneer," which, after serving on the Australian station for some time, was recently paid off at Sydney, is now to be handed over to the Commonwealth Government, to be converted into a training ship, having been offered by the Admiralty as a free gift to the Commonwealth, together with her guns and such stores as are incidental to the service for which she is required.

There are four other training ships in the Royal Australian Navy—the "Encounter," a second-class protected cruiser of 5,880 tons; the "Protector," and "Gayundah," vessels used for the Royal Naval Reserve; and the "Tingira," a boys' training ship.

GENERAL.

The following is the list of warships, exclusive of torpedo-boats and submarines, launched during the year 1912, with their tonnage, I.H.P., and estimated speed (these details are approximate only):—

GREAT BRITAIN.—Battleships—"Marlborough," "Iron Duke," 25,400 tons displacement, 33,000 I.H.P.; "Ajax," "Audacious," 24,000 tons,

31,000 I.H.P.; battle cruisers—"Queen Mary," 27,400 tons, 75,000 I.H.P.; protected cruisers—"Melbourne," "Sydney," 5,700 tons, 25,000 I.H.P.; "Dublin," "Southampton," 5,500 tons, 22,000 I.H.P.; destroyers—"Christopher," "Cockatrice," "Shark," "Sparrowhawk," "Hardy," 950 tons, 23,500 I.H.P.; "Firedrake," "Lurcher," "Oak," 790 tons, 20,000 I.H.P.

AUSTRIA-HUNGARY.—Battleships—"Tegetthoff," "Prinz Eugen," 21,400 tons, 25,000 I.H.P.; protected cruisers—"Helgoland," "Saida," 3,500 tons, 25,000 I.H.P.; destroyers—"Balafon," "Tafra."

CHINA.—Protected cruiser—"Fei-Hung," 2,600 tons, 6,500 I.H.P.

FRANCE.—Battleships—"Paris," "France," 23,500 tons, 29,000 I.H.P.; destroyers—"Bisson," "Commandant-Lucas," 770 tons, 14,500 I.H.P.; "Aspirant Herbert," "Enseigne-Henry," 407 tons, 7,500 I.H.P.

ITALY.—Protected cruisers—"Libia," 3,800 tons, 12,500 I.H.P.; "Marsala," 3,600 tons, 22,500 I.H.P.; destroyers—"Indomito," "Intrepido," "Ardito."

JAPAN.—Armoured cruiser—"Kongo," 28,000 tons, 70,000 I.H.P.; destroyers—"Sakura," "Taschibana," 900 tons, 18,000 I.H.P.

THE NETHERLANDS.—Gunboats—"Brinio," "Inso," "Gruno," 540 tons, 1,200 I.H.P.; destroyers—"Buldog," "Jakhals," "Iset," "Wolf," 484 tons, 8,500 I.H.P.

SPAIN.—Battleships—"España," 15,700 tons, 15,500 I.H.P.

UNITED STATES.—Battleships—"Texas," "New York," 27,400 tons, 32,000 I.H.P.; destroyers—"Beale," "Fanning," "Henley," "Jarvis," "Jouett," "Jenkins."

FRANCE.

The following are the principal promotions and appointments which have been made:—

PROMOTIONS.—Rear-Admirals—P. A. Le Bris, E. J. Perrin, L. J. Pivet to be Vice-Admirals. Capitaines de vaisseau—P. A. de Gueydon, A. M. Ytier, E. A. Serres, C. T. Charlier to be Rear-Admirals.

APPOINTMENTS.—Vice-Admiral Le Bris to be Chief of the General Staff of the Navy, Vice-Admiral Perrin to be Director of the Works Department, Vice-Admiral Charlier to be Director of the Superior School of the Navy; Rear-Admiral Sénès to command the 2nd Division of 1st Squadron of First Fleet. Capitaines de vaisseau—M. M. Testu De Balincourt to "Montcalm," M. I. Daveluy to "Dupleix," M. C. De Lafournière to "Casabianca" and group of mine-layers of First Fleet.

—*Journal Officiel de la République Française.*

THE TACTICAL USE OF BATTLE-CRUISERS.—The following article recently appeared in *La Vie Maritime*:—

"Reasoning theoretically, what *is* the plan for using battle-cruisers in future battles? Besides the part of a scout, which their great speed and their large bunkers allow them always to fill, these powerful ships will be able to undertake the destruction of the enemy's commerce, to close many of his numerous dockyards, and thus contribute to his defeat on the field of battle.

These ships can be used during a battle to win an advantageous position with respect to the enemy's line, to prevent the T, or to turn it,

as well as being employed by the stronger fleet to take care of the weakest portions of the line in battle. These ships of speeds of 28 knots and more can reach any battleship, and being armed with the heaviest guns in service, they are capable of forcing a fleet in retreat to choose between losing a part of its force or of resuming the fight.

It appears from the above that the stronger fleet alone is concerned in possessing battle-cruisers, and that the nation which cannot hope to have the advantage in numbers ought, on the contrary, to devote all its means to the building of battleships alone.

The necessity of annihilating first of all the principal fleet of the enemy is more and more important, and requires the concentration on the main battlefield of all the force that one possesses. So England cannot hope to be able actually to part with her "Invincibles" and "Lions" in order to protect her commerce against the enemy, since she does not consider it wise to maintain a force in the Mediterranean, which is judged too far from her own coasts where the fate of the nation will be decided.

Thus the English battle-cruisers are attached strictly to the squadrons, and will take a direct part in the fight.

It will be the same with the German division, "Von der Tann," "Moltke," "Goeben," and "Seydlitz"; the German battle-cruisers will not be able to devote themselves to the destruction of English commerce without passing by the North of England in order to avoid the danger of the fleets of Harwich, Rosyth, and Dundee, and returning by the same route to revictual, and after such a long detour will be able to keep the sea but a short time. There being no way of disposing of prizes, the battle-cruisers will be unable to fulfil this plan. Furthermore, there is the menace of the English fleet, 60 per cent. stronger than theirs, the Germans will thus have to retain all the capital ships in their fleet. Thus it seems certain that all battle-cruisers will stay with the battle fleet.

Forced to use these powerful units on the battle scene for the same reasons, the opponents will employ them only for decisive combat; only then will they risk throwing them out ahead to take stock of the enemy's fleet, if, indeed, they do not still prefer to keep them near the squadron of the line, in order to be sure of being able to take an immediate part in the battle from a good position.

Thus logic and necessity combine to consider the battle-cruiser as a part of the battle line, and thus its *rôle* appears to be primordial. Its speed permits it to give to the enemy's line, held under the fire of the battleships, some blows that its heavy guns render of moment, it will force the enemy's line to manœuvre under the fire of its own line; it will turn the head of the line and disable the flagship; it will create finally the diversion necessary to win.

Battle-cruisers are thus necessary to a line of battle fighting another battle line having them, and it is most desirable to keep them when the enemy has lost hers.

The French armoured cruisers cannot fulfil the *rôle* of scouts on account of their slow speed, they will not be efficient against those of their adversaries, having to retreat from the "Moltkes" and "Lions." In the battle they cannot be used if the latter enter the fire. Our costly armoured cruisers thus become useless; it is thus necessary to build battle-cruisers. Far from weakening our battle line, they will assure it

the flexibility which now our battle line composed of ships of one speed does not possess. They will permit the squadron commander to increase his range of tactics and the number of his movements.

United States Naval Institute Proceedings from *La Vie Maritime.*

THE FRENCH POWDER INQUIRY COMMITTEE.—The Committee of Inquiry, of which General Gaudin is president, on the subject of powders, believe they have found the cause of the terrible disasters in the past. The formula of powder B, due to M. Vielle, is of itself good, only when the care of manufacture is of a very high order. The slightest impurity in any of the ingredients will cause reactions strong enough to decompose and ignite the powder. The main offence in lack of care has been in the purification of the raw cotton. Austria and Russia have never had trouble with powder B, where its manufacture is conducted with the greatest care and attention to detail.

M. de Chardonnet states that the cotton and the nitric acid are the materials needing closest watch. The nitration must be absolutely homogeneous. Fibres badly nitrated decompose easily, especially in the conditions found on board ship. Vielle powder, made with proper care, is free from any danger of decomposition.

M. Delpech says that powders chemically pure are transparent, that M. Vielle's formula is not perfection, but produces a mixed material, porous, and very sensitive to moist air; that French sailors all know that American and Russian powders are greatly superior to their own, in uniformity of material as well as density. French powder makers should swallow their pride and copy methods of foreigners, because the latter have better success than they do.

M. Painlevé, reporter of the Naval Budget, says that French powder manufacture has been isolated from supervision, separated from everyone by a true wall of China. This industry, on the contrary, in other nations, has been subjected to the closest scrutiny with no obstacles put in the way of inspectors. There are two things the French can do, either manufacture their powder carefully, or adopt nitro-glycerine powder. Germany, which manufactures most methodically all kinds of modern powder, has adopted for its army nitro-cellulose, similar to powder B, and employs for its heavy ordnance, and consequently for its Navy, nitro-glycerine powders.

M. Bénazet, reporter of the powder budget, says that an excess of sulphuric acid has crept into the mixed acids quite frequently. The proportion of half sulphuric and half nitric is as high as is safe, but yet 660 parts by volume to 1,000 parts by volume, sulphuric to nitric, has been common, and, in the pyroxyline manufacture, of which he has had much experience, productive of many spontaneous ignitions.

The conclusion reached is that if purification of raw materials and manufacture be accomplished, no more radical solution of the powder problem is necessary.

M. Painlevé recently stated at Brest:—"My conviction is stronger than ever that it is criminal to wait longer before making a radical solution of the powder problem. The powder landed by the Third Squadron would have to be re-embarked in case of a mobilization, but I believe that nobody would dare to give such an order. The result of such an order would be deplorable. In the firing of the Third Squadron they used only charges put up in cartridges and not a single bagged charge. I strongly hope that the discussion on appropriation will not end without the necessary

decision being made. It is necessary to control private industries, break the monopoly, and manufacture powder in Government factories."

THE BERTHENOD WIRELESS SYSTEM.—The distinguished French scientist, M. Berthenod, states that the descriptions given of his newly-discovered system of wireless telegraphy have not been at all accurate. His invention, he states, is not an improvement on the apparatus system of communication, but the discovery of an entirely new principle of wireless. All scientists had, for a long time, been searching for a sparkless wireless. Some had succeeded, notably the American inventor Alexander Anderson, but the machines thus made are high-frequency alternators, with which the Berthenod system has nothing to do. Machines like Anderson's, said M. Berthenod, are really toys, for they are extremely expensive, and are able to emit only 6,000-metre waves. Berthenod's machines are solid and practical and can give 60,000-metre waves. To give the others the same power, if it were possible, would cost millions of dollars.

M. Berthenod's apparatus is in two parts, the machine proper and the antennæ, both being special. The spark is suppressed and the oscillation is produced by special machinery. A very important point, and this was the important object aimed at by the discoverer, is the production of long waves. The difficulty with the present wireless is the short wave, with whose progress all other short waves in the atmosphere interfere. Long waves are not troubled or interfered with by the short ones. The longer the wave is the less it deteriorates. The long waves emitted by Berthenod's apparatus are completely independent of the phenomena of Nature. Moreover, the short waves cannot mathematically be measured accurately. One can possibly be measured, but the next one cannot, owing to the depression. On the contrary, Berthenod's waves are all measured mathematically and very accurately. Before launching a wave he knows its mathematic measure, for he is a very distinguished and scientific mathematician. The production of long waves and their measurement is the great problem whence, as all scientists know, will be developed the wider application of the wireless system to telegraphy and telephony, and greater rapidity of transmission.

M. Berthenod has made numbers of practical experimental applications, notably between Paris and Brussels. He used the existing supports or masts, and then, after carefully testing the antennæ, sent an experimental 2,000-metre wave. He next used an apparatus which allowed a 20,000-metre wave. He measured the waves and found the communication by the long wave better than by the shorter one. In this connection a very important result was found, that the long wave was obtained with the same antennæ and supports—that is to say, at exactly the same expense as the short one. He was so well satisfied with the results obtained that he has ordered machinery of high power, and hopes in a few months to be able to communicate from Paris to America. He states that his wireless messages will not be intercepted, that other stations will not interfere on account of the great length of the metre waves, but if a port wishes to intercept a message that can easily be effected, and that secrecy of transmission is a separate problem.

Such are the claims of the inventor, which, it is to be hoped, can be fully substantiated; for wireless, though still in its infancy, has already demonstrated its great value, and its achievements thus far justify its inclusion among the wonders of the world.

U.S. Army and Navy Journal.

EXPERIMENTS WITH DELAYED ACTION H.-E. FUSES.—In the latter part of September, off Cherbourg, some interesting high-explosive shell and fuse experiments took place against the old "Neptune." Armour plates similar to the side armour of battleships were secured on board, and the firing was carried out from a shore battery. The new armour-piercing shell of 6.4-inch calibre, fitted with a special fuse, was fired at the plates from a range of 450 yards. The shell penetrated the plate and detonated behind it. The gas and fragments would have produced great damage in the interior of a battleship. The battery also fired shell of 9.6-inch calibre. The latter detonated beyond the plate and sent fragments in all directions for five-eighths of a mile. Very little exact information is procurable. The French, however, seem convinced that they have a perfect high-explosive fuse, and that the problem of bursting Melinite shells in the interior of armoured and unarmoured vessels at all battle ranges is solved. In these experiments various velocities were used so as to represent the battle ranges, the short range adopted for the test being due to the desirability of hitting the steel at the point desired.

United States Naval Institute Proceedings.

ITALY.

NEW BATTLESHIPS.—The new battleships "Dandolo" and "Morosini," of the 1912-13 programme, will mount ten 14-inch guns in four turrets, all in axial line, two of these mounting three guns each. They will have a displacement of 28,000 tons, with engines indicating 49,000 I.H.P., giving a speed of 25 knots. The secondary battery will consist of 6-inch guns. There will be a complete waterline armour belt, which will have a maximum thickness of 16 inches, and will come up to the upper deck amidships, while the secondary or anti-torpedo battery will be protected with 8-inch armour. They will have no funnels and use liquid fuel. The new gun for these ships is reported to be a 15-inch, with low initial velocity, firing a shell weighing 1,653 lbs., and carrying 88 lbs. of high explosive.

TORPEDO-BOATS.—There are 40 coast torpedo-boats building in private shipyards in Italy, 18 at Pattison's works at Naples, 12 by Odero, and eight by Ansaldo at Genoa, all of which will use oil fuel, and two are motor boats. Of these, 13 are now in service. On their trials they made from 32 to 34 knots speed instead of the contract speed of 27 knots.

There are ten destroyers building, six of the "Impavido" type and four of the "Ardente" type. They have a displacement of 700 tons, and carry one 5-inch and four 3-inch guns. The six destroyers of the "Impavido" type are fitted with the Tosi turbines. The "Indomito" made a speed of 36.1 knots on her forced-draught trials, the engines developing 17,000 I.H.P., though only 30 knots were required by contract. The "Indomito" was built by the Societá Pattison, Naples, and she is the first of six Tosi turbine-driven destroyers which have been ordered from the Pattison Company for the Italian Navy. Her principal dimensions are as follows:—Length, 239 feet 6 inches; beam, 24 feet; depth, 15 feet 10 inches. She is fitted with two Tosi steam turbines, mounted in two separate compartments, each driving a propeller. They develop together 15,000 shaft horse-power, and are designed to give a speed of 30 knots. Five of these destroyers were to be completed by the end of 1912, and the other five early this year. Italy now has 20 new destroyers

of from 400 to 700 tons displacement, besides 43 efficient large torpedo-boats.

The torpedo-boat matériel has suffered considerably during the war, and the supplementary appropriation of £15,625 will be partly used to provide destroyers of over 900 tons displacement to burn oil fuel and have a speed of 32 knots.

SUBMARINES.—Five of the eight submarines of the "Fiat" type, "Medusa," "Beleda," "Salpa," "Argo" and "Fisalia" are now in commission. They made 14 knots surface speed on their trials. Two more of these will be completed this spring. The "Nautilus" and "Nereide," of 300 tons, "Bernardi" type, were to be completed by the end of last year. The "G. Farraris" and "G. Pullino," 400 ton boats of the "Cavallini" type, will be completed this summer. The "Atropo," 300 tons, of the "Germania" type, was delivered last summer. This vessel has completed her first trials. The maximum speed was 14.7 knots, though the contract called for only 12. This was the mean of two runs over the measured mile. The Diésel motors are two-cycle. By the middle of 1913, Italy will have 20 submarines. It is now proposed to build submarines of 500 tons displacement.

ANTI-AIR CRAFT PRACTICE.—The Italians conducted a series of 10 days' target practice, firing against captive dirigible balloons, which were towed along the coast by a torpedo-boat with lines of from 500 to 800 metres long, at a distance of from two to five kilometres from the coast. They fired about 500 shells and shrapnel, with tracer fuses. In one case a balloon still floated in the air with two hits. The last practice was held in the presence of the Minister of War and Minister of Marine; two balloons of a volume of 15 to 25 cubic metres were destroyed by shell fire. One was hit at a range of 5,000 metres. The guns used in this practice were mounted to permit an elevation of 75 degrees.

United States Naval Institute Proceedings from the *Marine Rundschau.*

NORWAY.

NEW NAVAL LAW.—A new naval law was recently submitted to the Storthing, providing £1,166,666 for the navy coast defence; £875,000 of this is the estimated cost for building two coast-defence ships for defence of the coast, at Bergen; £70,000 is the estimated cost of building one submarine; £63,333 for torpedoes and £35,000 for ammunition.

There is allotted for the defences and naval stations at Ofoten Fiord £52,500, at Christiania Fiord (Horten Cutoff) £40,833, at Bergen £213,333, at Christiansand £5,833, and Drontheim £5,833. In the discussion it was stated that the present defences had become obsolete, and it was necessary to provide new defences so that the estimates could only be regarded as the first instalments for the new defences that must be erected.

The Minister declared that in case of war between any of the great Powers it would be obligatory to preserve the neutrality and prevent any violation of neutrality in the ports of Norway. The defences at Christiania Fiord were essential, especially to protect the Horten Cutoff, which was the only available means of refuge for the Norwegian coast defence ships.

The desired naval shipbuilding programme, to extend over a period of years, was not approved by the Storthing, because they did not feel warranted to obligate future Storthings to the expenditures of a naval programme.

Norway, now actively engaged in the reorganization of its long-neglected fleet, has first placed an order with the Germania Krupp works at Kiel for the construction of a new submersible. This vessel will be delivered in 20 months, and is an advance on anything now building. Three others are also under construction.

The last Storthing voted 20 million crowns for the modernizing of the fleet and coast defence. This sum will be devoted to the construction of two armoured cruisers, fortifications near Narurk, and in the Christiania Fiord, and the building of naval bases at Bergen, Drontheim and Christiansand. Outside the above sum other credits will be voted for the national defence. According to the naval programme the fleet will be increased by six new armoured cruisers, six destroyers, about 40 torpedo-boats, and 14 submersibles.

United States Naval Institute Proceedings from the *Internationale Revue.*

UNITED STATES.

THE RADIO STATION AT ARLINGTON.—This station is now completed and in working order. A lieutenant in the Navy and 12 enlisted men comprise its crew. At a designated hour daily messages covering official business with the fleet are radiated to American warships. Daily hydrographic reports, notices to mariners acquainting them with the existence of derelicts and icebergs or other information, are sent to vessels in the steamer lanes.

Only one other similar structure in the world is as high from the ground as the central tower at Arlington, and that is the great German wireless steel tower at Nauen, near Potsdam, which was completed last February and is able to communicate with America. Unlike the Arlington arrangement, the Nauen station has a single steel tower, 650 feet in height, around which spread like umbrella ribs a series of 13 wooden masts, each 128 feet high, from the peaks of which antennæ stretch 650 feet long.

The Arlington station will not be able to receive messages from the distance to which it can send them; at least, not from every plant with which it may communicate. The plant at Arlington is powerful enough to receive any message that may reach it. But in the beginning of its existence few, if any, of the great stations will be able to send messages regularly a like distance under ordinary conditions, and few craft, even under the most favourable weather, are able to send a message over a thousand miles. A vessel with a ten-kilowat naval radio plant may send a message 800 miles, under ordinary circumstances, and 2,000 or more miles when the atmosphere is freakish. With a sending radius of 3,000 miles in ordinary weather, the Arlington station is expected to have a radius of 4,000 or 5,000 miles in freak weather, and it is thought that sometime during its history the Arlington station may experience a peculiar condition of weather which might enable it to send even as far as Japan.

To avoid smoke, dust and vibration, the power for the operation of the plant is derived from the electric conduits of the city of Washington. This power drives a 200-horse-power electric motor, which in turn drives what is described as a 100-kilowat 500-cycle alternating generating plant. Two currents, one of which is primary and of 100 volts, the other secondary and of 12,500 volts, are produced by this generator. The primary current passes into a novel transformer, which " steps up," and is increased into a high current of 12,500 volts in the secondary circuit.

The two wings of the station are separated by short vestibules from the central machinery plant. These vestibules are wooden. The connections of the vestibules with the brick-work are padded with lino-felt, which takes up the vibration from the machinery plant and avoids corresponding complications in the operating rooms. There are two of these rooms. One is occupied by the radio operators, the other by those who man the telephone and telegraph wires connecting the station with the outside world. The radio operators' room is unique. It is built somewhat upon the style of a huge refrigerator. It is absolutely sound-proof, and when its door is closed the radio operator on duty cannot be bothered by any sound or vibrations from without. The only entrance into the radio operating room is through a double refrigerator door. The room has no windows, and is artificially lighted and ventilated. Even the air used in doing this is sound-proof, as it passes through a series of air-ducts in which "baffle plates" are strung so as to baffle any noise that may attempt to creep with the ventilation into the radio operating room.

A separate room has been set apart for use by operators of the land wires. Connecting it with the sound-proof radio operating room is a telantograph.

When a message is to be sent by wireless it is not taken through the refrigerator door into the radio operating room, but it is laid down there by the outside operator through use of the telantograph. The outside operating room does not have to be storm and vibration-proof and is connected with the outside world in three ways: by public telegraph, and private and public telephone. There is a private telephone wire leading direct from this outside operating room into the Bureau of Navigation in the Navy Department. This avoids any leakage of official messages through use of the City telephone service. Should anything happen to this official wire the plant has another telephone connection through the regular City switchboard. Within the reach of this outside operator are keys connected with the telegraph systems of the Postal and Western Union Companies, by means of which any wireless message may be relaid over land wires to any part of the United States.

Army and Navy Journal.

TRIALS OF THE SUBMARINE "SEAL."—The new submarine torpedo-boat "Seal," or "G.1," as she is now known, constructed by the Lake Torpedo-Boat Company, successfully completed her trials recently, which were of a severe character. High penalties were incorporated in the contract—$15,000 per knot for failure to make contract speed; $500 an hour for failure to carry a certain number of hours' fuel supply at 14 knots speed; failure to submerge from light condition while running at 14 knots to submerged running at eight knots in a greater time than six minutes was to be penalized at $500 a minute; $100 a second was to be imposed as penalty if it took longer than ten seconds to reverse from full-speed ahead while running at 14 knots; $1,000 an inch for failure to secure a metacentric height of 15 inches when submerged. The "Seal" carries not only bow tubes, but also deck tubes in a superstructure; side doors are opened in this superstructure, and, the torpedoes being located in revolvable torpedo tubes, the torpedoes may be trained to either broadside, as they are trained in a surface destroyer. This permits of firing at close range and greater accuracy; and also of discharge of the torpedoes while the vessel is at rest submerged, so as to prevent discovery by the wake formed

by the periscope, which it is necessary to use while making a bow-on attack.

The "Seal" is also fitted with wheels for navigating on the bottom, which is of great advantage in navigating channels, as has been demonstrated in Russia, where the Lake boat was the only one that succeeded in getting even near the outer breakwater fortification before being discovered. The "Seal" exceeded every contract requirement; her contract surface speed was 14 knots; she made 14.7, making her the fastest submarine in the United States; her contract submerged speed was 9.5 knots and she made nearly 11, and at a speed of five knots she can run continuously submerged for over 125 miles. At a speed of eight knots she can make a voyage of over 4,000 miles on the surface, or over 2,500 miles semi-submerged. She is the only submarine that can fire torpedoes when submerged or on the surface covering an arc of 300 degrees. The contract called for her to be able to charge batteries while navigating under one engine; the trials showed that she could charge batteries at the normal rate under one engine and be navigated at the same time at a speed of over ten knots with the other engine.

One of the other trials was to proceed submerged at a speed of over nine-and-a-half knots over the measured mile, during which period the depth should be maintained within three feet; she was easily run submerged at nearly 11 knots and the depth did not vary two feet, and at eight-and-a-half knots the depth over the course was maintained within one foot. On firing torpedoes submerged, the "Seal" does not show the tendency to broach to the surface as has been the cause of much criticism in boats of the earlier type, as adopted by the United States Government. Balancing submerged at rest, she was held at a depth of approximately 65 feet for ten minutes, while, by the use of her fore and aft anchors, she can remain submerged at rest at any desired depth up to 200 feet for two or more days, if necessary.

The contract called for her to be submerged to a depth of 200 feet and to remain submerged at that depth for a period of ten minutes. Previous to her test it had been common practice to test the submarines with a derrick to lower them down, the submarines, being given a slight negative buoyancy, were lowered without anyone inside them; but Captain Sloan Danenhower, who was formerly in command of several of the Government submarines, was in command on her trials, and he had so much confidence in the "Seal" that he took her down to a depth of 256 feet with her own crew, thus establishing a world's record. Captain Danenhower also dived out of the door in the diving compartment to show how readily the crew could escape from the "Seal" if she should become disabled and unable to be brought to the surface. Her contract price is $450,000, and two others of similar dimensions are under construction.

Précis from *Army and Navy Journal.*

SEATTLE AND PUGET SOUND HARBOUR IMPROVEMENTS.—In the year 1908, when the Atlantic fleet of 16 battleships steamed into Puget Sound and dropped anchor in crescent formation a short distance from the docks at Seattle, striking evidence was afforded as to the ample depth of water and wide area of anchorage afforded by the harbour. These excellent natural advantages of deep and sheltered waters are to be supplemented by large and costly improvements—the work partly of the United States Government and partly of the citizens of Seattle. The part of the latter is represented by a bond issue of $5,000,000, the money to be used for

clearing the site of 112 acres of the highest-class industrial property in the City, and the erection thereon by the Port Commission of a series of piers.

So far as actual harbour improvements go, the Government and the people of the North-west are spending more than $8,000,000 for waterways, jetties, etc. The largest project is the Lake Washington Canal, extending from Salmon Bay to Union Bay on Lake Washington. The distance is between four and five miles. The channel will be 100 feet wide at the bottom and from Salmon Bay to Lake Union will be 35 feet deep at low tide; from Lake Union to Lake Washington will be 25 feet at low tide. In connection with this waterway, which will be completed by the end of 1914, the Government is now at work upon a huge lock, the second largest in the United States, costing $2,275,000. The lock will be 860 feet long and 80 feet wide, inside dimensions. The right-of-way for this canal cost $250,000, the excavation already has cost about $450,000, and the excavation to complete the canal will cost another million.

The great value to Seattle of this canal, opening up, as it does, two great fresh-water harbours, supplying generous dock space and factory sites, is evident. It increases the water frontage from 14 to 150 miles. The cost about equally divided between the Government and the people of Seattle and King County.

Another waterway project contemplated is the straightening of the Duwamish River. This plan involves an expenditure of about $1,000,000 to construct a straight channel in place of the Duwamish River, extending south four miles from the harbour, the channel being 18 feet deep.

Other improvements in the North-west being built by the Government are the Gray's Harbour jetties, costing in all about $2,600,000. The jetty on the south side of the harbour, 14,000 feet long, is completed, and of the one on the north side about 13,000 feet is partially completed, and will cost, when completed, $1,600,000. These jetties are for the purpose of scouring out a bar at the entrance of Gray's Harbour. Seattle, fortunately, has no problem of a bar to contend with. The Government is also installing draining dikes at Everett Harbour and at the mouth of the Snohomish River. These are about three miles long and cost $125,000. The cost of dredging about 600,000 yards of dirt for the channel will cost approximately $80,000 additional.

Précis from *Scientific American.*

MILITARY NOTES.

BRITISH EMPIRE.

The following are the principal appointments, promotions and retirements for January:—

APPOINTMENTS.—Major-General L. B. Friend, C.B., to be a Major-General in charge of Administration, vice Major-General C. A. Hadfield, dated 2nd January; Major-General R. L. Payne, C.B., D.S.O., British Service, to be a Divisional Commander, Indian Army, vice Lieut.-General Sir A. A. Pearson, K.C.B., Indian Army, dated 30th October, 1912; Major-General W. R. Birdwood, C.B., C.S.I., C.I.E., D.S.O., to be Secretary, Army Department, Indian Army, vice Lieut.-General Sir M. H. S. Grover, K.C.I.E., C.B., dated 17th November, 1912; Lieut.-General Sir M. H. S.

Grover, K.C.I.E., C.B., Indian Army, to be a Divisional Commander, Indian Army, vice Lieut.-General H. C. Sclater, C.B., British Service, dated 17th November, 1912.

PROMOTIONS.—Colonel R. C. Broome, C.I.E., Indian Army, Director-General, Army Remount Department in India, to be Major-General, vice W. du G. Gray, C.B., dated 12th October, 1912; Colonel (temporary Brig.-General) A. H. Gordon, C.B., Director of Military Operations in India, to be Major-General, vice Sir J. R. L. Macdonald, dated 22nd January.

RETIREMENTS.—Major-General Sir J. R. L. Macdonald, K.C.I.E., C.B., on an Indian pension, dated 22nd January; Major-General G. F. Browne, C.B., D.S.O., dated 29th January.

Australia.

EXTRACTS FROM THE REPORT OF THE MINISTER FOR DEFENCE, COMMONWEALTH OF AUSTRALIA, ON THE PROGRESS OF UNIVERSAL TRAINING.

(TO 30th JUNE, 1912.)

Report on the Progress of Universal Training to 30th June, 1912.

SECTION I.—STAGES OF PROGRESS.

The progress of the Universal Training scheme might be divided into four distinct stages:—

1st the Preparatory Stage—prior to 1st January, 1911, in which is included the amending of the clauses of the Defence Act relating to universal obligation in respect of Naval or Military training; the preparation of Regulations and Standing Orders for Senior and Junior Cadets; the appointment and training of 200 additional drill instructors; the appointment and training of 224 temporary area officers; the provisional division of the Commonwealth into training, battalion, and brigade areas; the allotment of the instructional staff; and the placing of orders for the manufacture of arms, ammunition, accoutrements, and uniforms.

2nd the Preliminary Stage, from 1st January to 30th June, 1911, in which is included the appointment and training of 30 additional drill instructors to provide for increase of establishment and to make good wastage; the registration, inspection, and medical examination of the 1894, 1895, 1896, and 1897 quotas of Senior Cadets (*i.e.*, those born in the years 1894, 1895, 1896, and 1897); the medical examination of the 1898 and 1899 quotas of Junior Cadets; the issue of exemptions from training to the medically unfit and to those resident in remote localities; the appointment of localities for training; the organization of Military Senior Cadet units and the allotment thereto of those liable for training; the appointment of officers to Senior Cadet battalions; and the distribution of arms, accoutrements, and uniforms.

3rd Stage, from 1st July, 1911, *to 30th June,* 1912, in which is included the commencement of the training of four quotas of Senior Cadets and two quotas of Junior Cadets; the appointment and training of 40 additional drill instructors; the appointment and training of 13 instructors of physical training for teachers of Junior Cadets; the registration, inspection, medical examination, issue of necessary exemptions, and allotment of the 1898 quota of Senior Cadets; the medical examination of the 1900 quota of Junior Cadets; the medical examination of the 1894 quota of Senior

Cadets for training in the Militia Forces; the preparation of regulations and standing orders for the citizen forces; the reorganization of the whole of the existing Militia units and the allotment thereto of the existing officers and the 1894 quota of recruits, and the placing of orders for the manufacture of arms, ammunition, accoutrements, and uniforms for the 1894 quota for the Militia Forces and the 1898 quota for the Senior Cadets.

4th Stage, from 1st July, 1912, to 30th June, 1913, in which is included the commencement of the training of the 1894 quota in the Militia Forces; the continuation of the training of Senior and Junior Cadets; and the registration, inspection, medical examination, and necessary exemption of one additional quota in each; the medical examination and allotment of one additional quota of Senior Cadets for training in the Militia Forces, and the appointment and training of 40 additional drill instructors.

SECTION II.—AREAS.

In accordance with the territorial scheme recommended by Lord Kitchener, that portion of Australia in which the obligatory clauses of the Act have been proclaimed to be in force, has been divided into training battalion and brigade areas. The basis of the territorial system is in the battalion area. For purposes of military organization, four battalion areas are grouped to form a brigade area.

For purposes of administration and training, each battalion area is subdivided into training areas. Metropolitan and city battalion areas are divided into two training areas. Owing to the scattered nature of the population and their wide extent, country battalion areas are divided into three training areas. The provisional distribution of areas provided for 93 battalion areas, grouped to form 23 brigade areas, and sub-divided into 224 training areas.

The original boundaries were determined on the number estimated to be liable for training in each area, and this was founded on very meagre data obtained from municipal and electoral rolls, and birth and census statistics. Very soon after training commenced in July, 1911, it was found that several re-adjustments were required in the area boundaries. As it was essential that some degree of permanency should be arrived at regarding these areas, a committee of Headquarters officers was appointed to revise the boundaries. While the calculations on which the requirements for each area was based on a uniform method for the Commonwealth, the committee found it necessary to visit the capital cities of the largest States in order that local considerations should be fully taken into account.

As a result of the investigations made, it was decided to reduce the number of battalion areas by one, and the training areas by five, the present distribution being as follows:—

1st	Military	District,	31	Training	Areas,	12	Battalion	Areas,	3	Brigade	Areas.
2nd	"	"	72	"	"	32	"	"	8	"	"
3rd	"	"	65	"	"	29	"	"	7	"	"
4th	"	"	24	"	"	9	"	"	2	"	"
5th	"	"	15	"	"	6	"	"	2	"	"
6th	"	"	12	"	"	4	"	"	1	"	"
Commonwealth			219	"	"	92	"	"	23	"	"

SECTION III.—TRAINING LOCALITIES.

Owing to the expense attached to the initiation of the scheme the application of the obligatory clauses of the Act has been, at first, necessarily limited to the large cities and the more populous of the country towns. The establishment of training localities has been restricted therefore to those places which provide not less than 60 "fit" Senior Cadets resident within a five-miles radius. As the scheme expands it is hoped that it will be possible to extend the provisions of the Act to many of the smaller localities.

In the meantime temporary exemptions for one year have been granted to all persons resident more than five miles from a training centre. During the ensuing year these temporary exemptions will be renewed for a further period of one year. Temporary exemptions were also issued to many living near the outskirts of the prescribed limits on representation being made of the difficulty of communication or other satisfactory reason, and it is not intended that any hardship should be imposed on any one other than that which might be expected to result from any scheme necessitating personal obligation which might conflict with personal interests in other directions.

Four hundred and forty-six separate training localities have been established, distributed as follows:—

1st Military District	60
2nd Military District	151
3rd Military District	121
4th Military District	47
5th Military District	38
6th Military District	29
Total	446

SECTION IV.—REGISTRATION.

. . . . . The registrations made during 1912, of those born in the year 1898, are 9,500 below the average of the registrations of those born in the years 1894 to 1897.

Comparison of number of registrations made to June 30th, 1912:—

Total for Commonwealth: Average number of registrations, 1894 to 1897 quotas, 38,185; number of registrations, 1898 quota, 28,681; comparative deficiency, 9,504.

From a close scrutiny of the registrations in the various areas, it is noted that the deficiencies are general both in country and metropolitan localities, and in training and exempt areas.

The following table of male births . . . . . shows that the falling off of the registrations of the 1898 quota cannot be ascribed to a lower birth-rate in the year 1898:—

AUSTRALIAN BIRTH STATISTCS.

Year.	Total.
1894	53,703
1895	53,900
1896	51,155
1897	51,697
Average for years 1894 to 1897	52,614
1898	50,804

The attention of district commandants has been called to this serious matter, and they have been directed to report the steps they have taken to prosecute those who have not registered and the action taken to secure full registrations.

SECTION V.—SENIOR CADET ORGANIZATION.

Ninety-two battalions of Senior Cadets have been organized including 904 companies, necessitating 2,804 officers, 92 as battalion commanders and 2,712 as company officers.

Senior Cadet Battalions have not been formed on the usual eight company infantry organization, as all Senior Cadets in a battalion area are trained as infantry and are allotted to the Senior Cadet battalion of that area, whereas the boundaries of the battalion areas have been determined on the numbers required for the Citizen Forces for all arms of the service in a particular area, consequently the companies forming Senior Cadet battalions vary from eight to as many as 16 companies.

1st	Military District,	12	Senior Cadet	Battalions,	121	Senior Cadet	Companies.		
2nd	"	"	32	"	"	334	"	"	"
3rd	"	"	29	"	"	285	"	"	"
4th	"	"	9	"	"	91	"	"	"
5th	"	"	6	"	"	40	"	"	"
6th	"	"	4	"	"	33	"	"	"
Commonwealth		92	"	"	"	904	"	"	"

SECTION VI.—SENIOR CADET OFFICERS.

For obvious reasons it was at first desirable, as far as possible, that officers of Senior Cadets should be appointed from men of more mature age than may be always necessary, and the number of applications received from persons desirous of appointments as officers is considered very satisfactory. Fortunately, the majority of officers who were previously serving with the Senior and Junior Cadets under the old voluntary system continued their service with the Senior Cadets under the new scheme. This gave the scheme a good start with a large number of experienced and capable officers. Those officers of the old organization who found that they could not devote their time under the new scheme, were, on their own application, transferred to the Unattached List; they retain their rank and are available should their services be necessary when their private circumstances permit.

Of the new officers, many had had little or no previous military training, and most of the ordinary instruction which is usually given by company officers themselves has fallen on the shoulders of the Area Officers and the Instructional Staff. Most of the officers, however, have shown a keen desire to perfect themselves in their military knowledge, many of them have qualified by examination and have been confirmed in their appointments, and in a very short time it is anticipated that they will nearly all be capable of affording the instruction required of them.

The resignations of officers have been comparatively large, but this was to be expected, as many applied for appointment not knowing what duties they were really called upon to perform. Within a few months the number of resignations should become normal, and should not exceed those which result from the ordinary causes, such as removal of residence, and change of occupation.

Second-lieutenants are officers appointed by competitive examination from among the Senior Cadets themselves. The number appointed so far is comparatively small, but their appointment has not been encouraged as it was found that the Defence Act required that they should lose their commissions and transfer to the ranks of the Citizen Forces on their arriving at the age of eighteen years. The amending Bill now before Parliament prescribes that officers of Senior Cadets on becoming liable for service in the Citizen Forces may continue to serve as officers in the Senior Cadets for such time and under such conditions as may be prescribed, and such service shall be in lieu of service in the Citizen Forces.

SECTION VII.—OBLIGATORY PERSONAL SERVICE.

Section 127 (*b*) of the Defence Act prescribes obligatory personal service—

> "In the Senior Cadets—four whole-day drills, 12 half-day drills, and 24 night drills."
>
> "Provided that in the Senior Cadets the duration of a whole-day drill shall not be less than four hours, of a half-day drill not less than two hours, and of a night drill not less than one hour."

This proviso was inserted by the amending Act No. 15, of 1911, which decreased the duration of whole-day drills, half-day drills, and night drills by two hours, one hour, and half-an-hour respectively, or a reduction from 96 hours to 64 hours annually, equivalent to a decrease of 33⅓ per cent.

The total annual personal service demanded from Senior Cadets amounts only to 64 hours, 16 hours of which must consist of four whole-day drills, while the remaining 48 hours may be either half-day drills, night drills, or both. As the Act prescribes four whole-day drills, 12 half-day drills, and 24 night drills, it is not incumbent on officers to order any parades in excess of that number, in which event it would appear that absence from any one parade without lawful excuse (*i.e.*, proper representation made to the commanding officer and leave of absence obtained) would render a person liable for prosecution under Section 135 of the Act, as it would be impossible for him to make it good. It was realized, however, that occasions would arise when persons would find it impossible to attend certain parades, and in order to give such individuals a reasonable opportunity to comply with the Act, and also to afford opportunities to those members who are desirous of attaining a higher standard of military proficiency and to qualify for promotion, certain additional *special* parades were arranged which were termed "*voluntary*" parades at which attendance is *optional*. That is to say the definite number of parades which are prescribed by the Act were ordered as such and termed "statutory" parades; *additional* parades were called for certain purposes and termed "optional" or "voluntary parades."

During the year several prosecutions were instituted against persons for neglecting to render the personal service required of them in that they had absented themselves without lawful excuse from statutory parades, and a few convictions resulted. On the other hand, however, many of the magistrates either adjourned the case until after 30th June, 1912, or dismissed them, on the grounds that the year was not completed, and therefore that the offenders would have plenty of opportunities for compliance with the Act before the close of the year. But as before pointed

out, it is held that absence from any one statutory parade is an offence, and had commanding officers declined to call any special voluntary parades these offenders would not have had the opportunity of fulfilling their obligations, and there does not appear to be any grounds in support of the opinion expressed that "there will be plenty of opportunities for compliance with the Act before the close of the year."

As there were conflicting decisions in these cases, and all offenders had not received similar treatment, the Government decided, for the current year, to remit all fines inflicted in those cases in which convictions were secured. Such a step as cancelling or declining to hold special voluntary parades would have seriously affected those who had been absent with reasonable excuse and were desirous of attending other parades in lieu, and would have damped the ardour of the more enthusiastic members who were desirous of receiving special instruction to qualify for promotion.

But the adverse decisions of the magistrates created a new difficulty in a matter affecting the efficient training of the Senior Cadets. These decisions really mean that such distinctions as "statutory" and "voluntary" cease to have any effect because both become "optional" and Senior Cadets may entirely please themselves when they attend, so long as the minimum requirements of the Act are complied with. The result is that instead of there being the few statutory parades prescribed by the Act fully attended, there are a vast number of parades which are sparsely attended. Such a system tends to inefficiency, as it is impossible, owing to the many irregularly attended parades resulting in inequality in the ranks, to divide the year's work into definite and progressive stages. To secure efficiency and progress it is absolutely essential that certain parades should be precribed as "statutory" or "compulsory" in order that satisfactory attendances at parades might be secured. This is provided for in the amending Bill now before Parliament.

In this connection it is pointed out that it would be irregular to order a greater number of statutory parades than the small number prescribed by the Act, any additional being optional and voluntary. Owing to the magisterial decisions that attendance at *any* parade would be considered compliance with the Act, towards the end of the year the Minister directed that Area Officers should call a sufficient number of consecutive days' drill to enable all those to fulfil their obligations, who, through neglect had failed to do so, and were desirous of escaping prosecution. A large number of the Cadets availed themselves of this concession.

SECTION X.—MUSKETRY AND RIFLE RANGES.

Appendix 6 shows the existing musketry course prescribed for Senior Cadets, and Appendix 7 shows the number who fired in the course. It appears desirable, where practicable, that short rifle ranges for Senior Cadets should be provided in a number of suburban localities, to remove the congestion on metropolitan ranges, to prevent delay in proceeding to such ranges, and to ensure more efficient instruction in rifle practice. There should be sufficient ground available on the outskirts of metropolitan cities to provide for a number of short-distance ranges on which the short-ranged Senior Cadet rifle could be used without danger.

SECTION XI.—JUNIOR CADETS.

Registration is not required for Junior Cadet training, but all boys of the ages of 12 and 13 years are subject to medical examination as to

their physical fitness to undergo training. Appendix 1* shows the result of these examinations. On 1st July, 1912, the 1900 quota became liable for training as Junior Cadets, and the 1898 quota for training as Senior Cadets.

There has been some difficulty to provide for the training of boys who leave school before they are liable for training as Senior Cadets at the age of 14 years, but most of the States have now amended the compulsory clauses of the Education Acts to provide for attendance at school up to the age of 14 years, and where this has been done the difficulty has been overcome.

The Regulations for Junior Cadet training provide for—

(*a*) Physical training— to be carried out on each school day for not less than 15 minutes;
(*b*) Marching drill, elementary;
and the attainment of a certain standard of efficiency in not less than two of the following subjects:—
(*c*) Miniature rifle shooting;
(*d*) Swimming;
(*e*) Running exercises in organized games;
(*f*) First aid.

At schools, by the co-operation of the State Education Departments, and the principals of private schools, the training is conducted by the teachers themselves, to provide for the instruction of whom, 13 instructors of physical training were appointed by the Defence Department on 1st September, 1911.

To provide for uniformity and to systematize the methods of training, a special school of instruction for these Physical Training Instructors was held at Melbourne from 1st to 28th September, 1911, under the direction of the Director of Physical Training.

These instructors conduct Schools of Instruction for teachers and issue certificates as "Instructors of Junior Cadet Training" to those who qualify. They also visit the schools periodically when the pupils are being instructed and handle a squad to show the teachers the methods which should be adopted.

SENIOR CADETS IN TRAINING.—The numbers of Senior Cadets in training (1895-6-7-8 quotas) are: military, 92,000; naval, 3,000.

MILITIA.—On 1st July, 1912, the 1894 quota of Senior Cadets were medically examined, and those found fit passed into the Militia, where they serve side by side with the voluntarily enlisted men. The latter will gradually pass out of the service during the next three years, as their engagements expire, re-enlistments being only allowed in the case of non-commissioned officers and certain other special classes. The percentage of unfit was 16.3, to which must be added 7.8 rejected at the commencement of their Senior Cadet training; the total rejections of the 1894 quota being therefore 24.1.

New war establishments have been adopted, which are practically the same as those of the British Army. The existing units are being increased

* Not reproduced.

in number, as the strength admits, by a process of dividing old units to form a larger number of new units. The approximate figures are as follows :—

	Old Militia (before July, 1912).	*Militia* (1912-13).	*Militia* (after July, 1919).
Light Horse	6,400	9,100	15,700
Field Artillery	1,400	2,600	23,400
Garrison Artillery	1,500	1,400	1,400
Engineers	1,200	2,000	4,700
Infantry	12,600	21,000	96,000
Others	1,500	3,900	12,800
	24,600	40,000	154,000

Of the 154,000 (war establishment) about 128,000 will be in training.

RESERVES.—There are at present 50,569 reservists formed in 1,135 rifle clubs.

New Zealand.

CONVICTIONS UNDER THE NEW ZEALAND DEFENCE ACT.—Since the commencement of universal training, the number of convictions for offences under the New Zealand Defence Act up to 31st August, 1912, amounted to :—Cadets, 25; Territorials, 649. The approximate number of Cadets and Territorials liable up to 31st August, 1912, was 75,000.

MILITARY APPOINTMENT.—Colonel A. W. Robin, C.B., C.M.G., representing New Zealand on the Imperial General Staff at the War Office, has been appointed Military Adviser and Inspector of Warlike Stores for the Dominion, vice Major-General E. Harding, C.M.G., lately retired.

Canada.

MILITARY APPOINTMENTS.—Field-Marshal Viscount Kitchener of Khartoum, K.P., etc., etc., has been appointed Hon. Colonel of the Royal Canadian Engineers. Major-General W. H. Cotton, G.O.C. 2nd Division, has been appointed Inspector-General, Canadian Militia, vice Major-General W. D. Otter, C.V.O., C.B., retired. Colonel V. A. S. Williams, A.D.C., Inspector of Cavalry, has been appointed Adjutant-General, vice Brig.-General F. L. Lissarel, C.B., who has been promoted Major-General, and appointed G.O.C. 2nd Division.

Somaliland.

FORMATION OF A CAMEL CORPS.—A corps of camel constabulary has lately been raised in the Protectorate. The corps, which has an establishment of 150, is now at full strength, and is divided into two companies, each consisting of four sections of 18 men; the remainder of the men forming a maxim-gun detachment.

The corps, supported by the 119th Infantry, is already being employed in dealing with disturbances amongst the tribesmen in the vicinity of Berbera.

AUSTRIA-HUNGARY.

The Military Preparations of Austria and her Probable Plan of Operations.[1]

NOTE.—The following notes, which are condensed from an article by Commandant de Thomasson in the *Journal des Débats* of December 17th, 1912, should be read in conjunction with the summary of an article by the same author in *Questions Diplomatiques et Coloniales*, which appeared in last month's number of this JOURNAL (page 122). Reference should also be made to the map from *L'Illustration* which appeared on page 123 of the same number.—Ed.

"The military preparations, upon which Austria has been engaged during the last three months, are of very much the same description as those which she undertook at the time of the Bosnian crisis, with, however, the difference that on the present occasion they are not concerned only with the particular corps stationed in the southern portions of the Monarchy. Having regard to precedent, it may be hoped that all this pother may have no more bloody *dénouement* than in 1909; but since wisdom lies in anticipating the worst, it may be well to examine, as closely as possible, the *degree* of mobilization to which the General Staff in Vienna has arrived, and, in the event of the Ballplatz according a willing consent, to ask ourselves what number of effectives Austria could devote to the prosecution of a war against Servia.

"Let us remember, first and foremost, that the 16 Austro-Hungarian army corps mobilize in three divisions: two of which belong to the Common or Joint Army, and one to the Austrian or Hungarian Landwehr. They have a regional recruitment, except so far as regards those of Bosnia-Herzegovina, which are formed from the fourth battalions of regiments garrisoning the interior of the Empire. The distribution of these 16 army corps in time of peace is extraordinary—four are in Galicia, two in Bohemia, three are in the Alps, and four are on the Montenegrin, Servian and Rumanian frontiers. There remain, therefore, no more than three army corps in the interior of the country, on the central line of the Danube—at Vienna, Presburg and Buda Pesth. The dual monarchy wears, therefore, an aureole of bayonets, in the centre of which there is very little. This arrangement is not due to considerations of home politics alone. The complications of foreign policy have so acted that Austria has a constant succession of troubles on several of her frontiers at one and the same time, and these legitimize, as it were, these three great concentrations in Galicia, in the Alps and on the south.

"Since the end of September, that is to say, since the Ballplatz ceased to deceive itself as to the possibility of maintaining peace in the Balkans, a particular activity made itself noticed in the XVth and XVIth Corps—Bosnia-Herzegovina and Dalmatia. These corps received reinforcements in the early days of October; then came the turn of Galician corps; and towards the middle of October came the turn of those belonging to Agram, to Temesvar, and to Hermannstadt. The class about to be discharged was retained with the Colours, or was recalled in the case of such regiments from which it had already been dismissed, and at the

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[1] Translated by Colonel H. Wylly, C.B.

same time the reservists and the *Ersatz* reservists[1] were called up for service.

"The law, moreover, gives every facility for operations of this character. It lays down that during any period of political tension any reservists undergoing a course of instruction may be retained for a further term of four weeks, and further sanctions the calling up of the youngest class of the reserve and of the three youngest classes of the *Ersatz* reserve, should special circumstances seem to warrant such action. It will not have been forgotten that in 1908 and 1909 a large number of men about to be discharged, as also of *Ersatz* reservists, completed in this way no less than seven months of extra service.

"Then, after the early Servian victories, Austria redoubled her precautions. The army corps of Vienna and Buda Pesth were reinforced by the same measures as before; some ten battalions were sent to the Dalmatian ports, where transports were collected, and about 20 other battalions were sent to the XVth and XVIth Corps. Thus at the end of November, 1912, the situation was as follows:—The XVth and XVIth Corps which, normally, reckon on about 64 battalions, had now more than 80; the effective strength of their companies had been brought up to 200 men each; while their trains had been completed by the requisitioning of horses. In the three remaining southern corps—those of Agram, Temesvar and Hermannstadt—each company numbered 150 men. The flotilla of Danube gunboats was mobilized. Finally, in the north-east, not only the four Galician corps, but the IXth (Bohemian) Corps, which flanks them on the west, was placed on the same footing as the southern corps, *viz.*, 150 men per company.

"Should Austria, in the event of the negotiations in London breaking down or being indefinitely prolonged, decide upon delivering Servia a heavy blow, with what instruments would she be able to undertake such a measure? We know that at the time of the Bosnian crisis she would, in all probability, have set apart at least five army corps for coercing the two Servian states. *Danzer's Armee Zeitung*, one of the most important of the military newspapers in Vienna, stage-managed this expedition splendidly in a series of articles, which made a great sensation. But to-day the situation is wholly different. Servia has already begun to turn back again to the north, towards Nisch, possibly towards Kruchevatz, but it would be for her a very big business so to dispose her army as to resist Austrian aggression, since it would mean nothing less than placing her advanced guards where now are her lines of communication. That is as much as to say that she would probably give up all idea of defending the region of Petrovatz—Palanka, 40 miles south of the Danube, where one would ordinarily expect to find the first line of resistance of the Servian Army, the other positions being about Kragoujevatz, where is the Servian arsenal, at Stalatz, the confluence of the Servian and Bulgarian Moravas, and lastly, at Nisch.

"It appears, then, that under present circumstances, the Austrians would be able without serious difficulty, to take certain places in pledge in Northern Servia, notably Belgrade. But once masters of this capital, would not Austria be putting herself at a grave distance from the banks of the Save and of the Danube? There are weighty reasons for believing that

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[1] The *Ersatz* reservists are those men who have been excused service, or those extra to requirements who have received an abridged instruction and form a reserve for recruitment.

the Russia of 1912 is no longer the Russia of 1909, and that consequently having shot her bolt, Austria would not make any plunge into Servia without knowing what effect this would produce in Russia. Were Russia to mobilize, Austria would probably maintain in the south no more troops than would be necessary for parrying any Servian counter-attack, and we do not think that these troops could well amount to more than the IVth Army Corps, the XVth and XVIth Corps from Bosnia-Herzegovina, the VIIth Corps from Temesvar, and perhaps the XIIIth Corps from Agram.

"The XVIth Army Corps is stationed at Ragusa, Mostar, and Cattaro. These names of themselves make it clear enough that this corps cannot be directly employed against the Servians. Cattaro, on the Montenegrin border, cannot be evacuated, while Mostar is the capital of Herzegovina, a country very much more unruly than Bosnia, and for long past overrun by the emissaries of King Nicholas. On the other hand, the whole of the XVth Corps at Serajevo would probably be immobilized by the need for holding the Bosnians in awe. One, possibly two, divisions might cross the Drina and be diverted either on Valievo, or upon Belgrade, *via* Chabatz by the valley of the Save, in order to make more easy for the VIIth Corps from Temesvar the passage of the Save or of the Danube. These two rivers—the Save has a breadth of at least 600, and the Danube of more than 1,000 metres—are very serious obstacles, the more that at this particular time of the year they have always overflowed their banks. Recently a great concentration has been reported by the troops of the XVth Corps at Bielina, in the north-east corner of Bosnia, between the Save and the Drina and close to the Servian frontier. The contingents massed in this small town seem intended, should such action become necessary, to enter Servia by crossing the Drina. At the same time the Temesvar army corps would take the offensive, and would easily possess itself of Belgrade; bridging materials have already been collected on the banks of the Save and the Danube, and the great railway bridge over the Save, between Belgrade and Semlin, is under a military guard. As regards the XIIIth Corps from Agram, it would constitute a general reserve.

"Would the remaining 12 army corps of the Austro-Hungarian Army be concentrated in Galicia? Would the corps belonging to Innsbrück and Gratz leave the Alpine frontier? One may well entertain doubts on these heads even on the very morrow of the renewal of the Triple Alliance. There remain then either 10 or 12 army corps which, so it seems to us, are available for employment against Russia.

"In regard to the Rumanian contingent, massed in the north of Moldavia for the purpose of forming the right wing of the Austro-Hungarian Armies, this can hardly be estimated at a greater strength than three army corps at the very most. Rumania actually has five army corps, but it is very improbable that the one from the Dobrudja would be moved, and that any force less than one army corps would be left in observation on the Danube."

BELGIUM.

NEW ARMY BILL.—The new Army Bill was laid before the Belgian Chamber on December 5th, and was followed a few days later by a Memorandum explaining the necessity for an increase in the national forces.

The Explanatory Memorandum points out among other things that in case of an outbreak of war between France and Germany, both these

Powers would in all probability violate Belgian soil, and would expose that country to the horrors of an invasion. Since 1900, the military strength of these two Powers have so increased that, whereas in 1900 France and Germany would only oppose three army corps to the Belgian Army, they could now put five corps into the field.

The most important provisions of the Bill are as follows:—

(1) Instead of the present force of a field army of 100,000 men and 80,000 fortress troops, the army is to consist of:—

150,000 men in the field army;
130,000 men in the fortress troops;
60,000 men in the reserves and auxiliary troops;

Total 340,000

(2) The above force is to be raised thus:—

Thirteen classes of 35,000 men (instead of 19,000 men as at present)	455,000
Less 28 per cent. wastage	127,000
	328,000
Volunteers (cadre) not included in the contingent ...	12,000
Total	340,000

(3) A minimum of 49 per cent. of the men registered are to be taken for the annual levy.

(4) A limited number (5,000 annually) of young men of good education will be released after one year's service. It is intended to select reserve officers and under-officers from these "one-yearers."

(5) The present periods of training are not to be altered.

No mention was made of the cost of these proposals or how the cost is to be met.

CHINA.

Events in December, 1912.

THE SITUATION IN MONGOLIA.—Inflammatory articles have been appearing in the Peking Native Press urging the Government to oppose Russian action in Outer Mongolia by force of arms. War funds have been started in various centres, and efforts are being made to force the hand of the Central authorities, but the only military measures taken so far have been the despatch of columns towards Chih-feng Hsien, in North-east Chih-li, Kalgan, 120 miles north-west of Peking, and Kuei-hua T'ing, 120 miles west of Kalgan. These three columns, totalling some 18,000 men, are to be supported by a general reserve of three mixed brigades, formed from the 2nd, 3rd and 4th Divisions. It is stated that these movements, however, are merely intended as a demonstration to overawe the Mongols.

A *précis* of the Russo-Mongolian Agreement was published in the *Morning Post* of the 20th December, 1912. It consists of 17 articles, and clearly recognizes the Russian claims in Mongolia to river navigation, fishery, mining, timber cutting and pasturing, in addition to general

trading rights. The Russians are willing to recognize China's suzereignty and to withdraw their troops when the Chinese troops are withdrawn.

Tibet.

CHINESE REPLY TO BRITISH NOTE.—According to the Press, the Chinese Government replied on 23rd December to the British note of 17th August regarding Tibet. The reply declares that the Chinese Government has no intention of converting Tibet into another province of China, but urges that the right of despatching troops into Tibet is necessary for the fulfilment of the responsibilities attaching to China's treaty obligations with Great Britain. China considers that there is no need to negotiate a new treaty, and expresses regret at the attitude taken up by Great Britain.

CHINESE TROOPS IN TIBET.—According to the Press, fighting between General Chung's Chinese escort and the Tibetans at Lhasa continued until 9th November, when the former opened negotiations.

It is reported that General Chung has now come to terms with the Tibetan officials, whereby the remainder of the Chinese troops in Lhasa will shortly leave for China.

FRANCE.

Events in December, 1912.

NEW "LOI DES CADRES DE L'INFANTERIE."—The new *Loi des Cadres* has been finally passed by the French Senate. The chief opposition to the Bill came from the Socialists, who produced a scheme of their own, the provisions of which were as practical as their nebulous theories. The only other opposition to the Bill came from those deputies and senators who thought that the new Bill did not go far enough. The main objects of the measure are to better the encadrement of the Reserve regiments by providing them with a large number of active officers and *sous officiers*. There is no real augmentation in view, because, as it is, France takes every available man of her population, and the Government have not been able to see their way to the reintroduction of three years' service.

Increases.—The following increases in officers and *sous officiers* are, however, decided on: 26 Colonels, 125 Lieut.-Colonels, 250 *Chefs de Bataillons*, 502 Captains, 6,000 *sous officiers*. The number of lieutenants is reduced by 187.

Alterations in Units.—One hundred and seventy-three regiments (instead of 163), of which 164 regiments will have three battalions, and eight will have four battalions. One regiment will be in Corsica. There will be 31 battalions of *Chasseurs-à-pied* instead of 30. Four regiments of Zouaves. Twelve regiments of Algerian Rifles (instead of four). Five battalions of African Light Infantry. Three Saharan Companies.

LOI DES CADRES DE LA CAVALERIE.—A new *Loi des Cadres de la Cavalerie* was adopted by the *Chambres des Députés* on December 20th, by 503 to 76 votes. The new law will increase the number of regiments from 89 to 91, of which 81 will be stationed in France and ten in Algeria-Tunisia. Each regiment will have a *Cadre Complémentaire*. Each regiment will be organized with four squadrons and a depôt. The cavalry generally will be organized into ten independent cavalry divisions of three brigades each. Each division will have a body of 300 cyclists provided by the *Chasseurs-à-pied*.

It is worthy of note that the War Minister avoided giving a direct answer to the Socialists in the Chambre with regard to a *possible* extension of service in the mounted branches. It is hardly probable that the service will be extended to three years, but it is possible that it might be to 30 months, so as to cover the period between the return of the old contingent to their homes in September under present conditions, and the date by which the new contingent is capable of taking its place in the ranks.

NEW FRENCH HORSE ARTILLERY GUN.—A new gun for Horse Artillery has been adopted. Eighty of these weapons have been ordered, and the first consignment will be ready in July next. Its calibre will be 75 mm. and it will fire a 16 lb. shell. The weight behind the team will be 26½ cwt. instead of 37 cwt., as with the Field Artillery gun which is at present in use in the Horse Artillery batteries.

COMMAND CHANGES.—General Michel has been appointed Military Governor of Paris, thus relieving General Maunoury, who has reached the age limit. General Foch, who attended our manœuvres in Cambridgeshire last year, has been appointed to the command of the VIIIth Army Corps and General Brochin to the Vth Army Corps. General Langle de Cary has been appointed to the Superior War Council.

French Colonies.

INTER-COLONIAL WIRELESS TELEGRAPHY.—A Bill has been introduced for the establishment of wireless telegraphy stations for communication between France and all her Colonies. The cost will be £800,000. The following lines are recommended:—

Eastern Line Stations: South of France; Tunis; Djibuti; Pondéchéry; Saigon; Madagascar.

African and South American Lines: France (South) as above; Marocco; Saint Louis; Colomb Bechar; Timbuctoo; Bangui.

Pacific Line: France (as above); Marocco (as above); St. Louis (as above); Martinique; Marquises; Tahiti; Noumea; Saigon (as above). For North America—France (West) to the United States.

Marocco.

Events in December, 1912.

MILITARY OPERATIONS.—The only important military event was the siege of a party of 400 men under Major Massoutier, in a small village about 22 miles South of Mogador. Massoutier was carrying out a police patrol when he was attacked by men of the Guelluli and Haha tribes and forced to take refuge in a village, where he entrenched himself. Owing to the difficulty of landing troops and animals at Mogador, some delay occurred before a relieving column could be equipped, and Massoutier was not rescued until 24th December, after a siege of seven days. The relieving column, under General Brulard, met with considerable resistance. Massoutier lost ten killed and 40 wounded, out of a total of about six companies.

Other engagements include an action fought by Mangin's column near Demnat on November 29th, when the French had seven wounded, and an engagement fought by Blondelat's column near Taddart on December 6th, when the French had one killed and six wounded.

On the whole, the French policy appears to be working out successfully, and the incessant activity of their small columns is producing its effect.

CASABLANCA-RABAT RAILWAY.—The first train on the new Casablanca-Rabat Railway arrived at the latter place on December 11th.

GENERAL LYAUTEY IN PARIS.—On December 4th, General Lyautey gave an account of the progress during the last six months in Marocco. He attributed the good results obtained firstly to proper decentralization, secondly to methods of slow penetration, coupled with co-operation with the tribes, thirdly to the unwearying labours of all ranks. He hoped after the New Year to be in a position to replace some of the French troops by fresh drafts of Senegalese.

He estimated that an immediate loan of £12,000,000 would be necessary for the development of the country.

THE SULTAN AT MARREKESH.—The Sultan arrived at Settat on December 5th, after having traversed the Shawia without incident, and subsequently proceeded to Marrekesh. His presence in the latter city had a favourable effect on events in the Sus valley, where the recent agitation is still giving rise to some anxiety.

Events in January, 1913.

THE SITUATION ROUND MOGADOR.—General Brulard's successful action during his march to the relief of Major Massoutier's column did not have the desired effect. His subsequent retirement to Mogador was followed by a regular rising south of that town, the nucleus of which was a band of Moorish deserters from the French service.

On January 6th, the Sebel tribesmen made a night attack on the camps of the Ruef and Coutard columns, respectively seven miles and one mile south of Mogador; this attack was beaten off after three-quarters of an hour's fighting. Colonel Gueydon's column of four battalions, two mountain batteries and one section of artillery, which had left Mogador in order to reinforce the forces of the friendly Kaid Kubban, had serious engagements on January 7th and 8th with a harka of 2,500 Moors, under Kaid Anflus. The French are reported to have been successful, but their losses in the two days' fighting amounted to 19 killed and 92 wounded; the Moors are estimated to have had between 400 and 500 casualties. These actions cleared the country east and north of the town.

General d'Esperey, who commands at Mogador, has about 8,000 men with him. He has organized a mobile column about 5,000 strong (five battalions, two squadrons, three batteries), under General Brulard. The *rôle* of this detachment will be to defeat and disperse the rebel detachments which are still reported about 18 miles south-east of Mogador. Considerable delay has been caused owing to the difficulty of landing men and stores in the heavy surf, but General Brulard is said to have definitely started on January 20th.

General Brulard's column was attacked on the night of January 23rd-24th, at Bou Riki, south of Mogador. After beating off this attack the column moved south on the morning of the 24th. Five miles south of Bou Riki the enemy was found strongly entrenched, but was driven from his position at the cost of eight killed and 41 wounded. The enemy's losses are believed to have been considerable.

ORGANIZATION.—The details of the present organization of Morocco are now as follows:—

Western Marocco.

(1) Shawia region. Commander, General Franchet d'Esperey. Districts: Bou-Rechid and Settat; 15 fortified posts.

(2) Rabat region. Commander, Colonel Blondlat. Districts: Zaer, Zemmour, Beni-Hassen, Gharb; 16 fortified posts.

(3) Meknes region. Commander, General Dalbiez. Districts: Meknes, Zemmour; seven fortified posts.

(4) Fez region. Commander, General Gouraud; five fortified posts.

(5) Doukkhala Abda (Mazagan) region. Commander, Lieut.-Colonel Peltier; three fortified posts.

(6) Marrakesh region. Commander, Colonel Mangin. Districts: Rehamna, Mogador; four fortified posts.

Eastern Marocco. (General Alix).

(7) Oudja region. Commander, General Trumelet-Faber. Districts: Oudja, Beni Snassen; five fortified posts.

(8) Taourirt region. Commander, General Girardot. Districts: Muluya, Debdou, Beni, Guil; eight fortified posts.

(9) Southern region. Commander, Lieut.-Colonel Ropert. District: Haut Guir; two fortified posts.

MEKNES REGION.—On January 14th, a party of Francophil Beni M'tir was attacked by the Beni M'guild. A French detachment reinforced the friendly Moors and successfully attacked the Beni M'guild. French casualties: three killed, 13 wounded.

FRENCH ARMY OF OCCUPATION.—Units of Spahis, Foreign Legion and Algerian "Tirailleurs" who have been two consecutive years in Marocco will be relieved during the first six months of 1913.

The strength of relieving units on departure will be 150 men per company and 100 sabres per squadron. On arrival in Marocco units will be made up to 210 men per company and 158 sabres per squadron. The men necessary for this increase will be found from: (1), Moorish infantry or cavalry; (2), volunteers to stay in Marocco; (3), if necessary, from those non-commissioned officers and men whose service in Marocco has been shortest.

GERMANY.

IMPERIAL MANŒUVRES, 1913 AND 1914.—In 1913 the Imperial manœuvres will take place in South-Eastern Germany, between the Vth and VIth Corps. In 1914 six corps will, it is reported, be assembled in the Vogelsberg between Fulda and Marburg.

DEATH OF COUNT VON SCHLIEFFEN.—Field-Marshal Count von Schlieffen died on January 8th. The Military Attaché at Berlin attended the funeral as representing His Majesty King George. The late Field-Marshal was A.D.C. to the Emperor, and had filled all the higher posts in the German Army, including that of Chief of the General Staff.

RUMOURED SUPPLEMENTARY ESTIMATES.—Rumours have been rife in the Press that certain services, such as provision of further machine-gun companies, formation in peace of cavalry divisions, etc., were to be accelerated and supplementary votes asked for. It seems, however, im-

probable that large supplementary estimates will be introduced for increases in the German Army this year. Nothing official on the subject has appeared. Pan-German newspapers are demanding an increase in the peace establishment of infantry companies and cavalry squadrons; formation of third battalions for those regiments which have not got them, increase in artillery horses, further training of the *Ersatz* reserve, the formation of a fresh army corps, etc., to fill up what they describe as "gaps" in the German Army.

GERMANY AND RUSSIA.—A semi-official warning to Russia has appeared in the German Press, to the effect that any independent action on the part of one of the Great Powers will be incompatible with the strict neutrality which they are practising. This has been evoked by the report that Russia has attempted to induce Turkey to give in by threatening to occupy the vilayets in Armenia.

German East Africa.

RAILWAYS.—The preliminary work on the portion of the Central Railway between Tabora and Lake Tanganyka has been completed to within 40 miles of the lake. It was anticipated that railhead would have reached the Malagrasi valley in January, 1913, and that this section would be opened for public traffic by June, 1913. The whole line is now expected to be completed in 1914, and arrangements are being made to begin work on the harbour at Kigoma at an early date.

It is reported that the construction of a light railway has been approved from Lindi for some 28 miles inland.

HOLLAND.

ARMY ESTIMATES.—The Army Estimates were discussed after the Christmas recess; the most important points were the reorganization of the infantry and the artillery. In the infantry it was proposed to form the 5th and 6th battalions and a depôt company of each regiment in peace time, instead of waiting till mobilization is ordered. Infantry regiments were to be of the following strengths:—

Peace: Four battalions of three companies.
Two battalions of two companies.
One depôt company.

War: Six battalions of four companies.
One depôt battalion.

A field artillery battery is to be organized for war in two half-batteries each of three guns; only one of these half-batteries is to be manned in peace.

The Minister of War was successful in carrying his Bill through Parliament. His demand for a sum on account for coast defence was dropped out of the Army Bill and tacked on to the Budget. A portion of the money allotted by the Bill will be devoted to the foundation of an Air Corps.

MACHINE-GUNS.—Experiments have been carried out in the use of dogs for drawing machine-guns. An experimental section was organized consisting of two machine-guns, each carried on a light two-wheeled cart, an ammunition cart and a tool cart. The weight of the gun carriage, without gun, was 308 lbs., that of the other vehicles 396 lbs. each. The dogs cost £5 each. The experiments are stated to have shown the utility of this method of traction.

ARMY MANŒUVRES.—Divisional and Army Manœuvres will be carried out by the 2nd and 4th Divisions from the 12th to the 26th September, 1913.

ITALY.

TREATY WITH TURKEY.—In December, 1912, the Treaty of Lausanne was approved by the Chamber by 355 votes to 24. The Premier, Signor Giolitti, in the course of the debate said that as a consequence of the war with Turkey, Italy had resumed her place among the Great Powers. Referring to the Aegean Islands, he stated that Italy was not bound to prevent their occupation by Greece, but he hoped the question would be submitted to a conference, when Italy would protect the interests of the islanders.

BALKAN WAR.—The semi-official Press stated with reference to the Balkan War that neither Italy nor Austria will ever permit Valona, Cape Linguetta, or the Island of Sasseno to be occupied by any other State, or converted into any form of naval or military base.

FINANCE.—The annual surplus for the year ending June, 1912, was £4,029,360. This surplus will be devoted to the Libyan War expenses with the 1911 surplus, £2,228,000, and the estimated surplus for 1913 of £2,140,000.

HIGHER COMMANDS.—Lieut.-General Zuccari will be appointed to command one of the four armies formed on mobilization by Italy. He succeeds Lieut.-General Ponza di San Martino, who retires on account of age. The four army commanders will be the Duke of Aosta, Lieut.-General Cadorna, Lieut.-General Zuccari, and General Caneva.

ARTILLERY.—It is reported that 32 batteries of 65 mm. mountain guns are being made at Turin in the Government factory.

These batteries are to be ready in April next. The new Italian 75 mm. gun is said to be identical with the Deport gun, but with the interior of the barrel like the Italian Krupp gun. Six hundred and thirty-three guns are being made, mostly by Vickers-Terni, but 25 are being made by Armstrong, at Pozzioli, and 12 in the Government factory at Naples. These guns should be delivered in November, 1913. The firms of Deport, Schneider, and Krupp have each been asked to provide one section of 105 mm. (4.095-inch) Q.F. field guns, with one ammunition wagon for comparative trials in October next.

MACHINE-GUNS.—Each infantry battalion of the Regular Army will probably be provided with a machine-gun section.

Libya.

GENERAL SITUATION.—In the districts round Tripoli the Arabs appear to be accepting the Italian rule, and some important local chiefs have come into Tripoli. Their influence probably extends to the coastal districts, though it is doubtful how far the tribes in the Jebel are disposed to treat with the Italians. On December 10th, however, about 100 native Christians submitted to the new rule at Tripoli, some coming from districts in the interior.

As regards Cyrenaica, Enver Bey has left the country in spite of the declaration he was said to have made that he would continue the campaign against Italy on his own account.

The Turkish Regular troops, 200 cavalry, 2,000 infantry and 12 guns, left Tripoli in the S.S. "Sannio" and "Verona," on December 10th. Enver Bey reached Alexandria *incognito* on December 2nd.

A sum of £2,000,000 has been voted by the Italian Chamber for the development of the new province of Libya. Signor Bortolini, the new Minister for the Colonies, is now making a journey of inspection in the country. Resident officers under the Colonial Office are being appointed to the places recently occupied, and progress is being made with the railway from Tripoli *via* Zanzur into the interior. Over 10,000 arms have been received in Tripoli from the natives.

MOVEMENT OF TROOPS.—Zliten, 44 miles west of Misurata, was occupied on December 2nd by a column of the 23rd and 50th Infantry and a mountain battery. Zavia, 27 miles west of Tripoli, was reached by General Lequio with the 1st Division, consisting of Generals Fara and Maggiotti's Brigades. He marched from Sidi Abdul Jehil, and he was at Zavia on December 4th. Agilah, 25 miles east of Zuara, had also been occupied. Gharian, 53 miles south of Tripoli, was occupied on December 11th by a force under General Montuori. Three Alpini battalions and a mountain battery left Suani Ben Aden on December 9th, and were joined by another battalion from Aziziah the same morning, and by two squadrons and the Savari native levy. General Montuori was in command. Tarhuna, 25 miles south of Cape Tagiura, was reached on December 18th, by a force under General Cavaciocchi, composed of one battalion 52nd Regiment, one squadron and one native battalion. No opposition was offered to any of these movements, and the whole of the country between Gharian and Homs has now been occupied by the Italian troops. One thousand two hundred Ascaris have landed at Benghasi from Massowah.

COMMUNICATIONS.—It is stated in the Italian Press that the former director of Turkish Telegraphs in Tripoli said that the telegraph service was very effective during the recent campaign. The Turkish commanders were in daily communication with Constantinople *via* Dehibat and Tunis, or *via* Sollum and Alexandria.

Unless the Arabs have destroyed the telegraph lines, there must be a vast network of telegraphic communications throughout the interior, extending probably as far as Fezzan. The Italians have recently opened telegraph offices at Agilah, Azizia, Gharian, Tarhuna, Tussabat, Zavia and Zuara.

RETURN OF THE EXPEDITIONARY FORCE FROM LIBYA.—The Minister of War has issued a circular stating that owing to the situation in Libya, the Expeditionary Force will be gradually reduced in numbers, beginning by sending home men of the senior annual contingent, and he hopes that the returning soldiers will be warmly welcomed by their fellow-countrymen.

JAPAN.

Events in December, 1912.

CHANGE OF MINISTRY.—The scheme for creating two new army divisions in Korea was finally rejected by the Saionji Cabinet at the beginning of December, and Baron Uehara, Minister of War in that Cabinet, resigned. In Japan, the Ministers of War and Marine must be officers on the active list; no suitable officer could be found willing to accept the vacant portfolio and brave the displeasure of the military party by joining a Cabinet which that party had decided to boycott. As a result Marquis Saionji resigned on 5th December.

Press reports state that there was considerable difficulty in finding a new Premier, and that the Elder Statesmen offered the post to Marquis

Matsukata, General Terauchi, Viscount Hirata and Admiral Yamamoto, who all in turn refused it.

Finally, Prince Katsura—who was lately created Lord Chamberlain—undertook the Premiership, with Lieut.-General Baron Y. Kikoshi as Minister for War, and Vice-Admiral Baron Saito as Minister for the Navy.

After accepting the Ministry of Marine, Baron Saito attended a conference of Admirals, and later it was announced that he had refused the post, as he found that the Admirals were of the opinion that naval expansion (which was somewhat prejudiced under the new Ministry) was vital to the defence of the Empire.

Finally an Imperial Edict was issued, ordering Baron Saito to remain in office, and the Cabinet was formally installed.

Prince Katsura, who became Premier for the third time, is 65 years old. He was educated in Prussia; Military Attaché in Berlin in 1875-8; Vice-Minister of War 1886-91; Governor-General Formosa 1896; War Minister 1898-1900; Premier 1901-5 and 1908-11. He is a G.C.B.

Lieut.-General Baron Kikoshi, the new Minister of War, was born in 1864; he studied in Germany 1882; took part in the Japan-China War, Boxer Rebellion, and Russo-Japanese War (G.O.C. Brigade 2nd Army). He was recently transferred from the command of the 6th to that of the 1st Division.

The resignation of the Saionji Cabinet awakened quite extraordinary feeling in the Japanese Press. It was the culmination of the long-continued struggle between the constitutional and the military or bureaucratic parties. And although the military party had apparently won the day—Prince Katsura is a General on the active list—the general effect of the struggle had been to awaken the nation to the dominance of the military element in the Cabinet. Popular opinion was on the whole against the heads of the Army, and military requirements and the prestige of the Army will no doubt suffer in consequence.

PROMOTIONS AND APPOINTMENTS.—Prince Kanin has been promoted to the rank of General, and appointed a member of the Military Council.

Lieut.-General Uchiyama has been transferred from the 15th to the 12th Division, and Lieut.-General Baron Yamane from the 12th to the Guard Division. Lieut.-General Iguchi, lately Commandant of the Staff College, has been appointed to the command of the 15th Division; and Major-General Oi is the new Commandant of the Staff College.

MEXICO.

Events in December, 1912.

REBELLION.—The revolution in Mexico has developed more than ever into brigandage, and many complaints have been made to the United States Government to urge them to apply the Monroe Doctrine and protect their own and foreign interests.

Mr. Taft sent on December 20th a fresh demand to President Madero that the Mexican Government shall take prompt action to put an end to the unrest in their country.

PERSIA.

POLITICAL SITUATION.—It is reported in the Press that the Premier has tendered his resignation to the Regent.

According to a Reuter's telegram, certain reactionaries in Tabriz have declared that the progress of Persia requires the dismissal of the Regent, the elimination of the Bakhtiari element from the Cabinet, and the placing of Saad-ud-Dauleh at the head of affairs. Failing this they state that the province of Azarbaijan will secede from the Tehran Government and declare its independence.

Another Reuter's despatch states that Salar-ed-Dowleh has rejected the terms offered by the Persian Government, saying that he will not accept terms from a Bakhtiari Government. He states that he is prepared to accept terms from a Government presided over by Saad-ud-Dauleh.

MURDER OF CAPTAIN ECKFORD.—It is understood that the Persian Government is taking active measures to punish the tribesmen implicated in the attack of 11th December last. Their efforts are, however, handicapped by present climatic conditions in Fars, and shortage of funds.

RUSSIA.

THE BALKAN WAR.—Little change occurred in Russia during January in the situation due to the Balkan War. The reservists due to be dismissed on 13th January were retained indefinitely with the colours. Reports in the foreign Press, which stated that two classes of reservists had been called up, were denied officially.

FREEDOM OF THE PRESS.—An Imperial Ukaze, dated 23rd December, 1912, forbids the publication of news relative to the readiness or preparation for war of the Army or the Navy. These restrictions will continue in force for 12 months.

DISCIPLINE.—It is reported in the Press that, as the result of further investigations into the mutiny of two sapper battalions at Tashkent, ten officers have been arrested.

PENSIONS AND SUBSISTENCE ALLOWANCES.—Army Order 417/1912 authorizes the issue of pensions to men disabled by wounds, injuries, or sickness contracted during service in the Army, Navy or Imperial Militia. In the event of death attributable to the service, the widow and family, or dependents, of the soldier will receive a pension. The scale of pension varies with the extent of the injury and the rank of the soldier. This order also directs that the families, or dependents, of soldiers, etc., called up, or retained for service, on mobilization shall be granted ration allowances or a cash equivalent.

RED CROSS RESERVIST ORDERLIES.—Army Order 523/1912 authorizes the formation of a new grade of first-class reservists, *viz.*, Red Cross medical orderlies. Soldiers selected for this grade will undergo a special course of four weeks' ambulance training in the last year of their colour service, and must pass the examination after it. The courses will be held under arrangements made by the Red Cross Society. To qualify for selection, non-commissioned officers and men must be: (*a*) of orthodox religion, (*b*) literate, (*c*) skilled in a trade, saddler, smith, carpenter or cook. The uniform will be of infantry pattern, with grey-blue breeches. The shoulder-straps will be wholly of "invisible" coloured material. The Red Cross badge will be worn on the shoulder straps, on the cap front, and on the white brassard carried on the left sleeve.

ARSENALS.—It is reported in the Press that the Austrian Skoda Steel Company is increasing its capital by 10,000,000 kronen in order to establish new steel works in connection with the Putilov Works at St. Petersburg.

The Council of Ministers has declined the offer of a syndicate, including the Creusot firm, to take over on lease the artillery factories at Perm. A credit of 9,000,000 roubles (£947,000) will be applied for to reorganize these factories at Government expense.

It is reported that a factory for explosives will be erected on the upper Yenesei, and will be ready for work in 1914.

RAILWAYS.—In his declaration to the Duma on December 18th, M. Kokovtsov said that the Amur railway would be completed in 1915 or 1916 at the latest, and that temporary traffic to Blagoveschensk would be opened next year.

The railway between Vladivostock and Ugolnaya junction is being doubled.

In his speech to the Duma, M. Kokovtsov mentioned the following as the most important proposals for new railways which would be introduced:—The railway across the Caucasus, the railway to Kyakta (on the Mongolian frontier, north of Urga), and the Kharkov—Kherson railway.

SPAIN.

FRANCO-SPANISH TREATY.—An abstract of the Franco-Spanish Treaty signed on November 27th has been published in the Press. The Treaty consists of 29 articles, and can be divided into two headings, territorial and administrative.

Spain loses a considerable amount of territory both in the north and south, but gains Mount Ghani, seven kilometres from Alkazar.

The Ifni Enclave, opposite the Canary Islands, will consist of a strip 25 kilometres wide and 44 kilometres long.

Both Governments agree not to allow fortifications to be erected on the portion of the Marocco coast opposite Gibraltar, between Melilla and the river Sebu. Tangier will form an international area, the zone beginning at Punta Altares, nine kilometres north-east of Tangier and continuing across country to a point 21 kilometres south of Cape Spartel.

The northern and southern zones will be administered under the control of a Spanish High Commissioner by a Khalifa, with headquarters at Tetuan.

The Tangier—Fez railway will be built by a single company, 60 per cent. of the capital being French, 40 per cent. Spanish, and with the consent of France and Spain eight per cent. of foreign capital may be admitted.

Both Powers agree to assist the Maroccan authorities to suppress the contraband in arms and ammunition.

Customs and finance are dealt with in detail. Spain has complete control of the Customs in her zone, and will contribute to the charges of the 1904 and 1910 loans 7.95 per cent. of the Customs revenue.

She will pay France 300,000 *Hassani* pesetas, representing the duties on goods imported through Atlantic ports of her zone for French consumption, and 200,000 pesetas similarly for goods imported through her Mediterranean ports, but this latter sum is subject to revision after the opening of railways provides statistics.

On the whole the Treaty has been recognized in Spain as a fairly satisfactory solution of a difficult subject.

THE WAR IN THE BALKAN PENINSULA.

(*Continued from the January* JOURNAL, *page* 134.)

A. POLITICAL.

THE PEACE CONFERENCE.—The Peace Conference opened in St. James's Palace on December 16th, 1912. After various tentative proposals and counter-proposals, the Turkish Delegates submitted the following conditions on January 1st, 1913:—

1. All occupied territories to the west of the vilayet of Adrianople will be ceded, but the determination of the boundaries and status of autonomous Albania must be submitted to the decision of the Great Powers.

2. The vilayet of Adrianople will remain in direct possession of the Ottoman Empire, and Turkey and Bulgaria will negotiate any rectification of frontier recognized by them as necessary.

3. Turkey cannot cede any of the Aegean Islands, but will discuss with the Great Powers questions relating to them.

4. Turkey is disposed to consent to any resolution that the protecting Powers may come to with her with regard to Crete.

5. The above-mentioned points form one indivisible whole.

These terms were not accepted by the Allies, who demanded that the Turks should submit amended proposals, involving: Abandonment of their rights over Crete; cession of the Aegean Islands; suggestions for a frontier which would leave Adrianople to the Allies. As the new proposals submitted by Turkey on January 6th did not fulfil these conditions the Allies broke off negotiations *sine die*.

On January 17th, a Collective Note was presented by the Powers to the Porte advising the cession of Adrianople; the Turkish Grand Council assembled on January 22nd to draft a reply, and appeared inclined to give way, but on the 23rd, Enver Bey, at the head of some 1,500 members of the Young Turk party, marched to the Palace and compelled Kiamil Pasha to resign. In the scuffle at the Palace, Nazim Pasha and his two A.D.C.'s were killed. A new Cabinet was then formed, with Mahmud Shefket Pasha as Grand Vizier and Minister of War.

On January 29th, the Balkan Delegates denounced the armistice, and hostilities, therefore, recommenced on February 3rd, at 7 p.m.

A Conference of Ambassadors of the Great Powers assembled at the British Foreign Office on December 17th; after its third sitting on December 30th, it was announced that the Powers had accepted the principle of Albanian autonomy, while guaranteeing commercial access to the Adriatic for Servia.

AUSTRIA-HUNGARY AND SERVIA.—The tension between Austria-Hungary and Servia was partially relaxed. The Prochaska incident was settled by the hoisting of the Austro-Hungarian flag over the Prisrend Consulate, while Servian troops rendered military honours, on January 16th.

On January 9th, Servia announced her intention of recalling her troops from the Adriatic coast as soon as peace was concluded. On January 21st, the Servian Delegates in London appealed to the Conference of Ambassadors to leave Servia her historical possessions, and in particular Ipek, Dechani, Djakova, Prisrend and Perlepe.

For military preparations in Austria and Russia see pp. 243, and 255 respectively.

MONTENEGRIN CLAIMS.—The Montenegrins still claim the cession of Scutari to them, and in this they are said to be strongly supported by Russia, and to a lesser extent by Italy. Austria, however, is reported to be firm in insisting that Scutari shall be included in the boundaries of Albania.

BULGARIA AND RUMANIA.—Negotiations continued in January between Bulgaria and Rumania regarding the territorial "compensation" which the latter should receive in the Dobrudscha. On January 25th, Rumania is said to have demanded a frontier from Tutrakhan, west of Silistria, to a point on the Black Sea coast south of Balchik. It was reported that Bulgaria was willing to dismantle the forts of Silistria, but declined to cede that city.

Extraordinary military credits, to the amount of £6,040,000 sterling, were passed by the Rumanian Parliament, at the beginning of the month.

It is reported in the Press that the Rumanian Army Estimates for the year 1913-14 show an increase of £8,000,000, the total spent on the Army amounting to half the total expenditure of the realm.

TURKISH FINANCE.—During the early part of January, the Turkish Government raised a loan in England of £500,000, which money was not to be devoted to military objects, but to the payment of officials. This loan was secured on the special war taxes.

According to the Press, on January 26th the Deutsche Bank advanced to the Ottoman Government the sum of £2,000,000, which will be deducted from the money obtained for the concession of the metropolitan railways of Constantinople to the Anatolian Railway Co.

B. WAR ORGANIZATION OF THE BELLIGERENTS.[1]

That well-informed Austrian journal, *Streffleur's Militärische Zeitschrift*, publishes in its December number, in conjunction with a summary of the campaign, a series of diagrams representing the *ordres de bataille* of the several armies, at the beginning of the war, from which the following data are taken:—

Bulgaria.

Military Forces.

HEADQUARTER STAFF: KING FERDINAND; Chief of the Staff, Major-General Ficheff; attached, Lieut.-General Saroff and General Nilolaeff.

FIRST ARMY: COMMANDER, MAJOR-GENERAL KUTINCHEFF; Chief of the Staff, Colonel Papadopoff:—

1st (Sofia) Division: Major-General Toseff; 1st Brigade, 1st and 6th Regiments; 2nd Brigade, 16th and 25th Regiments; 3rd Res. Bde., 37th and 38th Regiments; two squadrons divisional cavalry; 4th Regt. F.A. (nine four-gun batteries, Q.F.); one regiment F.A. (newly-formed, six six-gun batteries, Krupp); two mountain batteries, each of four guns, Q.F.; one pioneer btn. (two coys. with cyclist detachment); military police det., telegraph det., bridging det., divisional medical troops, etc.

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1 Translated from *Streffleur's Militärische Zeitschrift*, December, 1912, by Colonel H. Wylly, C.B.

6th (*Vratcha*) *Division*: Major-General Kotteff; 1st Brigade, 3rd and 25th Regiments; 2nd Brigade, 35th and 36th Regiments; 3rd Res. Bde., 43rd and 44th Regiments; two squadrons divisional cavalry; 2nd Regt. F.A. (nine four-gun batteries, Q.F.); one regt. F.A. (newly-formed, six six-gun batteries, Krupp); two mountain batteries, each of four guns, Q.F.; one pioneer btn. (two coys. with cyclist detachment); military police det., telegraph det., bridging det., divisional medical troops.

Army Troops: Military police; two or three four-gun batteries of 12 cm. howitzers, Q.F.; one or two six-gun batteries of 12 cm. howitzers, Krupp; telegraph, ammunition park, artillery repair column, field hospital, lines of communication, hospital, etc.

SECOND ARMY: COMMANDER, LIEUT.-GENERAL IVANOFF:—

3rd (*Sliven*) *Division*: Major-General Sarafoff; 1st Brigade, 11th and 32nd Regiments; 2nd Brigade, 24th and 29th Regiments; 3rd Res. Bde., 41st and 42nd Regiments; two squadrons divisional cavalry; 6th Regt. F.A. (nine four-gun batteries, Q.F.); one regt. F.A. (newly-formed, six six-gun batteries, Krupp); two mountain batteries, each of four guns, Q.F.; one pioneer btn. (two coys. with cyclist detachment); military police det., telegraph det., bridging det., divisional medical troops, etc.

8th (*Stara Zagora*) *Division*: Major-General Stancheff; 1st Brigade, 10th and 30th Regiments; 2nd Brigade, 12th and 23rd Regiments; 3rd Res. Bde., 51st and 52nd Regiments; two squadrons divisional cavalry; 8th Regt., F.A. (nine four-gun batteries, Q.F.); one regt. F.A. (newly-formed, six six-gun batteries, Krupp); two mountain batteries, each of four guns, Q.F.; one pioneer btn. (two coys. with cyclist detachment); military police det., telegraph det., bridging det., divisional medical troops.

Cavalry Division: 1st Brigade, 1st and 2nd Regiments; 2nd Brigade, 3rd and 4th Regiments; one or two (?) horse artillery batteries, Q.F.; one cyclist detachment; cavalry telegraph det., cavalry field ambulance.

Army Troops: military police; eight or 12 four-gun batteries of 12 cm. howitzers, Q.F.; six or 12 six-gun batteries of 12 cm. howitzers, Krupp; six siege batteries of four 15-cm. siege howitzers; search-light det., balloon det., field engineer park, telegraph company, ammunition column, repair column, field hospital, line of communication, hospital, etc.

THIRD ARMY: LIEUT.-GENERAL RADKO DIMITRIEFF; Chief of the Staff, Colonel Sostoff:—

4th (*Shumla*) *Division*: Major-General Bojadieff; 1st Brigade, 7th and 19th Regiments; 2nd Brigade, 8th and 31st Regiments; 3rd Res. Bde., 43rd and 44th Regiments; two squadrons divisional cavalry; 5th Regt. F.A. (nine four-gun batteries, Q.F.); one regt. F.A. (newly-formed, six six-gun batteries, Krupp); two mountain batteries, each of four guns, Q.F.; one pioneer btn. (two coys. with cyclist detachment); military police det., telegraph det., bridging det., divisional medical troops.

5th (*Rustchuk*) *Division*: Lieut.-General Petroff; 1st Brigade, 2nd and 5th Regiments; 2nd Brigade, 18th and 20th Regiments; 3rd Res. Bde., 45th and 46th Regiments; two squadrons divisional cavalry; 1st Regt. F.A. (nine four-gun batteries, Q.F.); one regt. F.A. (newly-formed, six six-gun batteries, Krupp); two mountain batteries, each of four guns, Q.F.; one pioneer btn. (two coys. with cyclist detachment); military police det. telegraph det., bridging det., divisional medical troops.

9th (Plevna) Division: Major-General Siraroff; 1st Brigade, 4th and 12th Regiments; 2nd Brigade, 33rd and 34th Regiments; 3rd Res. Bde., 53rd and 54th Regiments; two squadrons divisional cavalry; 9th Regt. F.A. (nine four-gun batteries, Q.F.); one regt. F.A. (newly-formed, six six-gun batteries, Krupp); two mountain batteries, each of four guns, Q.F.; one pioneer btn. (two coys. with cyclist detachment); military police det., telegraph det., bridging det., divisional medical troops.

Army Troops: military police; two or three four-gun batteries of 12 cm. howitzers, Q.F.; one or two six-gun batteries of 12 cm. howitzers, Krupp; telegraph, ammunition park, artillery repair column, field hospital, lines of communication, hospital, etc.

WESTERN GROUP: OPERATING IN STRUMA VALLEY:—

7th Division: Major-General Todoroff; 1st Brigade, 13th and 26th Regiments; 2nd Brigade, 14th and 22nd Regiments; 3rd Res. Bde., 49th and 50th Regiments; two squadrons divisional cavalry; 7th Regt. F.A. (nine four-gun batteries, Q.F.); one regt. F.A. (newly-formed, six six-gun batteries, Krupp); two mountain batteries, each of four guns, Q.F.; one pioneer btn. (two coys. with cyclist detachment); military police det., telegraph det., bridging det., divisional medical troops.

GROUP OPERATING IN ARDA VALLEY:—

2nd Division: Major-General Kovacheff; 1st Brigade, 9th and 21st Regiments; 2nd Brigade, 27th and 28th Regiments; 3rd Res. Bde., 39th and 40th Regiments; two squadrons divisional cavalry; 2nd Regt. F.A. (nine four-gun batteries, Q.F.); one regt. F.A. (newly-formed, six six-gun batteries, Krupp); two mountain batteries, each of four guns, Q.F.; one pioneer btn. (two coys. with cyclist detachment); military police det., telegraph det., bridging det., divisional medical troops.

NEW FORMATIONS: *10th Division*:—

Formed from the 3rd (Reserve) Brigades of the 1st and 6th Divisions; cavalry, artillery and departmental services to be new organizations or made up from other divisions.

11th Division: To be formed from Reserve and *Landsturm*.

STRENGTH.

1st Army: 32,000 bayonets, 200 sabres, 144 field guns (of which 72 Q.F.), 16 Q.F. mountain guns, and 14—24 heavy guns (of which 8—12 Q.F.).

2nd Army: 48,000 bayonets, 1,600 sabres, about 150 field guns (of which about 80 Q.F.), 16 Q.F. mountain guns, and about 100 heavy guns (of which about 40 Q.F.).

3rd Army: 72,000 bayonets, 300 sabres, 216 field guns (of which 108 Q.F.), 24 Q.F. mountain guns, 14—24 heavy guns (of which 8—12 Q.F.).

7th Division: 24,000 bayonets, 200 sabres, 72 field guns (of which 36 Q.F.), six Q.F. mountain guns.

2nd Division: the same as the 7th Division.

10th Division (new): about 16,000 bayonets.

11th Division (new): about 9,000 bayonets.

Grand Total: 225,000 bayonets (ration strength 340,000), 2,500 sabres, 650 field guns, of which 50 per cent. Q.F., 174 Q.F. mountain guns, 120—192 heavy guns, of which about 50 Q.F.

Naval Forces.

One destroyer, " Nadeschda," 1,715 tons, carrying two 10 cm. guns; six 100-ton torpedo boats, built in 1907 and 1908.

Servia.

(*Ordre de Bataille: end of October,* 1912.)

HEADQUARTER STAFF: KING PETER; Chief of the Staff, General R. Putnik.

FIRST ARMY: COMMANDER, THE CROWN PRINCE; Chief of Staff, Colonel Bojovich.

Cavalry Division: Prince Arsen. 1st Brigade: 1st and 2nd Regiments; 2nd Brigade: 3rd and 4th Regiments; each of four squadrons; two H.A. batteries, each of four guns.

Danube Division: 1st *Ban*, 7th, 8th, 9th and 18th Regiments. *Drina Division*: 1st *Ban*, 4th, 5th, 6th and 17th Regiments. *Morava Division*: 1st *Ban*, 1st, 2nd, 3rd and 16th Regiments. *Timok Division*: 2nd *Ban*, 13th, 14th and 15th Regiments. *Danube Division*: 2nd *Ban*,[1] 7th, 8th, and 9th Regiments.

To each division, nine batteries, each of four guns, and three squadrons 2nd *Ban* cavalry.

Army Troops: Two-thirds of a howitzer regiment (=four batteries of 12 cm. guns); one mountain battery division of three batteries; bridging detachment.

SECOND ARMY: COMMANDER, GENERAL STEPANOVICH; Chief of the Staff, Colonel Javanovich.

Timok Division: 1st *Ban*,[1] 13th, 14th, 15th and 20th Regiments. Nine batteries, each of four guns; three squadrons of cavalry.

THIRD ARMY: COMMANDER, GENERAL JANKOVICH; Chief of the Staff, Colonel Pesich.

Drina Division: 2nd *Ban*, 4th, 5th and 6th Regiments. *Morava Division*: 2nd *Ban*, 1st, 2nd and 3rd Regiments. *Sumadia Division*: 1st *Ban*, 10th, 11th, 12th and 19th Regiments. To each Division nine batteries, each of four guns; three squadrons of cavalry.

Army Troops: One mountain battery division of three batteries.

FOURTH OR IBAR ARMY: COMMANDER, GENERAL ZIKOVICH; Chief of Staff, Colonel Popovich.

Sumadia Division: 2nd *Ban*, 10th, 11th and 12th Regiments. Seven batteries, each of four guns (2nd *Ban*); three squadrons of cavalry; one mountain battery division of three batteries.

STRENGTHS.

First Army: 80 btns., 35 squadrons, 58 batteries; or fighting men: 66,000 bayonets, 4,400 sabres, 232 guns.

Second Army: 16 btns., three squadrons, nine batteries; or fighting men: 14,000 bayonets, 1,600 sabres, 36 guns.

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[1] In the beginning of December the Danube 2nd *Ban* Division and Timok 1st *Ban* Division were transferred to Adrianople.

Third Army: 40 battns., nine squadrons, 30 batteries; or fighting strength: 34,000 bayonets, 1,200 sabres, 120 guns.

Ibar Army: 16 battns., three squadrons, 12 batteries; or fighting strength: 16,000 bayonets, 400 sabres, 56 guns.

Grand Total: 130,000 to 150,000 bayonets, 7,600 sabres, 436 guns. Numbers actually drawing rations, about 200,000.[1]

NOTE.—In the beginning of November, Morava Division, 2nd *Ban*, of the Third Army was transferred to the Crown Prince's (First) Army.

The Levy for 1913, about 24,000, was called up.

Montenegro.

(*Ordre de Bataille: at the Beginning of the War.*)

ARMY HEADQUARTERS: KING NICHOLAS; Chief of the Staff, Prince Mirko.

NORTHERN ARMY: COMMANDER, GENERAL VUKOVICH,

9th Bde.: Hadzich, five battalions. Vol. Bde.: Five battalions of volunteers.

9th Bde.: One scout section; one mountain battery.

4th Division: 10th Bde., Vojvodich, six battalions, one scout section, one mountain battery. 11th Bde., Vesovich, six battalions, one scout section, one mountain battery.

Divisional Troops: One mountain battery, one field battery, one howitzer battery, two pioneer detachments, two telegraph detachments.

CENTRAL ARMY: COMMANDER, CROWN PRINCE DANILO; Chief of Staff, Commander Bechir.

Second Division: General Boskovich, later Lazovich. 4th Bde.: Prince Peter; six battalions, one scout section, one mountain battery. 5th Bde.: Three battalions, one scout section, one mountain battery. 6th Bde.: Prince Mirko; four battalions, one scout section, one mountain battery.

Divisional Troops: One mountain battery, one field battery, one howitzer battery, three pioneer detachments, three telegraph detachments.

Third Division: Commander, General Nikotich. 7th Bde.: Five battalions, one scout section, one mountain battery. 8th Bde.: Four battalions, one scout section, one mountain battery.

Divisional Troops: One mountain battery, one field battery, one howitzer battery, two pioneer detachments, two telegraph detachments.

SOUTHERN ARMY: COMMANDER, GENERAL MARTINOVICH.

First Division: Commander, General Gjurovich. 1st Bde.: Yukotich; six battalions, one scout section, one mountain battery. 2nd Bde.: Kussoyac; four battalions, one scout section, one mountain battery. 3rd Bde.: Lekich; five battalions, one scout section, one mountain battery.

Divisional Troops: One mountain battery, two field batteries, three pioneer detachments, three telegraph detachments.

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[1] This includes all casualties up to the end of October.

STRENGTHS.

Northern Army: 17 btns., five volunteer btns., six batteries=10,000 men.

Central Army: 22 btns, 11 batteries=13,000 men.

Southern Army: 15 btns., six batteries=8,000 men.

Grand Total, at the commencement of the operations, 31,000 men; to whom should be added from 2,000-3,000 Malissori.

Greece.

(*Ordre de Bataille*: *Military Forces.*)

ARMY HEADQUARTER STAFF: CROWN PRINCE CONSTANTINE; Chief of the Staff, Major-General Danglis.

1st Division: 2nd, 4th and 5th Bdes. (three battns. each), one squadron, six batteries, each of four Q.F. guns, one pioneer coy., one train coy., one medical coy.

2nd Division: 1st, 3rd and 7th Bdes. (three battns. each), one squadron, six batteries, each of four Q.F. guns, one pioneer coy., one train coy., one medical coy., four mountain batteries, each of four Q.F. guns.

3rd Division: 6th, 10th and 12th Bdes. (three battns. each), one squadron, six batteries, each of four Q.F. guns, one pioneer coy., one train coy., one medical coy., four mountain batteries, each of four Q.F. guns.

4th Division: 8th, 9th and 11th Bdes. (three battns. each), one squadron, six batteries, of four guns each, one pioneer coy., one train coy., one medical coy., three batteries, each of 12-cm. Q.F. guns.

Reserve Division: Two bdes., of three battns. each, one squadron, four batteries, of six Krupp guns each, one pioneer coy., one train coy., one medical coy.

Reserve Division: Two bdes., of three battns each, one squadron, four batteries, of six Krupp guns each, one pioneer coy., one train coy., one medical coy.

Reserve Division: Two bdes., of three battns. each.

Cavalry Division: Two bdes.

ARMY OF EPIRUS: COMMANDER, MAJOR-GENERAL SAPUNDZAKIS.

Reserve Division: One reserve regiment of four battns., three battns. *Evzones*, six battns. of Cretan Volunteers, one squadron, artillery (guns and type not stated), one train coy., one medical coy.

STRENGTHS.

Divisions 1-4, each of 11,000 bayonets, 100 sabres, and 24 guns; 2 and 3, 16 mountain guns in addition; 4, 12 heavy guns in addition. Two Reserve Divisions, each of 7,000 bayonets, 100 sabres, and 24 guns. Third Reserve Division, 7,000 bayonets. Cavalry Division, 1,000 sabres.

Epirus Army: 10,000 bayonets, 100 sabres.

Grand Total: 76,000 bayonets, 1,700 sabres, 144 field guns (96 Q.F.), 32 mountain guns (Q.F.) and 12 heavy guns. Ration strength, 115,000.

Naval Forces.

1. AEGEAN FLEET: COMMANDING, CAPTAIN KUNDIRIOTIS; Commandng Squadron, Captain Ginis.

Armoured Cruiser: "Giorgio Averoff," 1910, 10,000 tons. Guns: four 25-cm., eight 19-cm.

Coast Defence Ships: "Spetsai," 1889, 5,000 tons. Guns: two 27-cm. "Hydra," 1900, 5,000 tons. Guns: two 27-cm. "Psara," 1890, 5,000 tons. Guns: two 27-cm.

Torpedo Flotilla: Commander, Captain Bratsanos. Four destroyers, 1906-7, about 350 tons; four destroyers, 1906-7, about 400 tons; four destroyers, 1911-12, about 1,175 tons; three destroyers, 1911-12, about 680 tons; six torpedo-boats; one submarine.

2. GULF OF ARTA SQUADRON: COMMANDING, CAPTAIN DAMIANOS.

A few old gunboats, three small minelaying craft, two transports.

Turkey.

(*Conjectured Ordre de Bataille of the Military Forces in the middle of October*, 1912.)

COMMANDER OF ALL TROOPS OPERATING IN MACEDONIA.—ALI RIZA PACHA.

SCUTARI: COMMANDING, ESSAD PACHA.

24th Nizam Division, 16 battns.; Redif regt. (Scutari), four battns.; Redif Division (Elbasan), 13 battns.

SANJAK OF NOVI BAZAR: 1st, 20th and 21st Nizam Divisions (ten battns. each). (1st Nizam Division was transferred to Thrace in second half of October.)

VARDAR ARMY: COMMANDING, ZEKKI PACHA.

Vth Corps: (?) 13th and 14th Nizam Divisions (ten battns. each), one rifle regt (three battns.), one pioneer battn., three divl. bridging dets., one train battn., eight field hospitals.

VIth Corps: (?) 16th, 17th and 18th Nizam Divisions (ten battns. each), one rifle regt. (three battns.), one pioneer battn., three divl. bridging dets., one train battn. 12 field hospitals.

VIIth Corps: (?) 19th, 20th and 21st Nizam Divisions (ten battns. each), one rifle regt. (three battns.), one pioneer battn., three divl. bridging dets., one train battn. 12 field hospitals.

Redif Division (Prishtina), 11 battns.; Redif Divison (Uskub), ten battns.; Redif Division (Istip), eight battns.; Redif Division (Monastir), 11 battns.; Redif Division (Prisrend), 12 battns.; Redif Division (Mitrowitza), nine battns.

STRUMA ARMY: COMMANDING, ALI NADIR PACHA.

(?) 15th Nizam Division, ten battns; (?) three Redif Divisions (Seres, Drama, Salonika), nine battns. each.

ARMY OPERATING AGAINST GREECE: COMMANDING, HASSAN TAHSIN PACHA.

23rd Nizam Division, ten battns.; Redif Division (Yanina), eight battns.; 22nd Nizam Division, ten battns.; Redif Division (Naslich), ten battns.

STRENGTHS.

Scutari: 33 battns. (28,000 men), 36 guns.

Sanjak: 30 battns. (24,000 men), 72 guns.

Vardar Army: 150 battns. (94,000 men), 264 guns. (Excl. Albanians).

Struma Army: 37 battns. (24,000 men), 60 guns.

Opposing Greeks: 38 battns. (28,000 men), 72 guns. (Excl. Albanians).

EASTERN ARMY: COMMANDING, ABDULLAH PACHA.

Redif Division (Kirjali) (?) battns.

XVth Corps (Adrianople): Commanding, Shukri Pacha. 10th Nizam Division, ten battns.; Redif Division (Adrianople), ten battns.; Redif Division (Gumuldzina), nine battns.; Redif Division (Baba Eski), 12 battns.

Ist Corps: 2nd and 3rd Nizam Divisions (ten battns. each), one rifle regt. (three battns.), one pioneer battn., three divl. bridging dets., one train battn., eight field hospitals.

IInd Corps: 4th, 5th and 6th Nizam Divisions (ten battns. each), one rifle regt. (three battns.), one pioneer battn., three divl. bridging dets., one train battn., 12 field hospitals.

IIIrd Corps: 7th, 8th and 9th Nizam Divisions (ten battns. each), one rifle regt. (three battns.), one pioneer battn., three divl. bridging dets., one train battn., 12 field hospitals.

IVth Corps: 11th and 12th Nizam Divisions (ten battns. each), one rifle regt. (three battns.), one pioneer battn., three divl. bridging dets., one train battn., eight field hospitals.

(?) *XVIIth Corps*: (?) three divisions—from Anatolia.

(?) *XVIIIth Corps*: (?) three divisions—from Anatolia.

Cavalry Corps: 12 regts., each of 250 sabres; four H.A. batteries, each of four guns.

STRENGTHS.

Kirjali: Redif Division—about 12,000 men and 24 guns.

XVth Corps: 41 battns., about 32,000 men and 50 guns. Ist Corps: 23 battns., 48 guns. IInd Corps: 33 battns., 72 guns. IIIrd Corps: 33 battns., 72 guns. IVth Corps: 23 battns., 48 guns. XVIIth Corps: 30 battns., 36 guns (about). XVIIIth Corps: 30 battns., 36 guns (about).

Cavalry Corps: 3,000 sabres, 10 guns.

Grand Total: 486 battns. (326,000 men), 840 guns, 3,500 sabres. Ration strength, about 350,000.

REMARKS.—All the divisions were very weakly provided with cavalry. The information regarding the artillery and, to some extent, in regard to the infantry, is based upon the normal establishments.

Naval Forces.

Armoured Ships: "Barbarossa Haireddin" (1891-05), 10,000 tons. Guns: six 28-cm. "Torgud Reiss" (1891-04), 10,000 tons. Guns: six

28-cm. "Messudieh" (1874-03), 9,300 tons. Guns: two 24-cm. and twelve 15-cm. "Medjidieh" (1902), 3,200 tons. Guns: two 15-cm. and eight 12-cm. "Hamidieh" (1903), 3,800 tons. Guns: two 15-cm. and eight 12-cm.

Destroyers: Four (1909), 600 tons. Two (1907), 800 tons. Four, (1907-08), 300 tons.

Torpedo-Boats: Seven (1901-06), 150 tons. Three (1907), 100 tons.

C. MILITARY AND GENERAL.

Bulgaria.

ADMINISTRATION OF CONQUERED TERRITORY.—The Bulgarians have divided the Turkish territory they have occupied in Macedonia and Thrace into two administrative districts, under military Governors. The headquarters of the districts are at Serres and Kirk Kilissa. £280,000 have been voted by the Sobranye for expenditure upon these districts up till April 28th.

MOVEMENTS OF TROOPS.—No important movements of troops were reported during January. The Bulgarian position at Chatalja was said to be exceedingly strong, and some heavy guns are believed to have been mounted on it. The ground between the Turks and Bulgarians had been converted into an almost impassable quagmire by recent rains. General Paprikoff informed a representative of the *Pall Mall Gazette* that the Allied forces in Thrace, including the two Servian divisions, numbered 285,000 men, all under the supreme command of General Savoff, *viz.*:—

(*a*) 100,000 men, under General Ivanoff, round Adrianople.

(*b*) 125,000 men, under General Dimitrieff, are in front of the Chatalja lines.

(*c*) 60,000 men, under General Kutintcheff, on a front of about ten miles, extending from a point on the Sea of Marmora, to a point on the Aegean Sea. This line shuts off the Peninsula of Gallipoli.

In addition to the above there were available 70,000 reserves and 15,000 Macedonian volunteers.

On January 19th the Bulgarian headquarters were transferred from Kirk Kilissa to Demotika.

The headquarters of the Third Army is said to have been moved from Kirk Kilissa to Cherkeskeui.

CAPTURES.—The Bulgarian War Office stated that 498 Turkish officers and 21,190 men had been captured by the Bulgarian Army during the war.

LOSSES.—The *Times* special correspondent in Sofia reported on January 4th that the Bulgarian casualties up to date had been:—

Officers.—Dead, 284; wounded and sick, 876. Total, 1,160.

Men.—Dead, 21,018; wounded and sick, 51,000. Total 72,018. In all, 73,178.

Of the sick and wounded 70 per cent. were stated to have recovered or to be on a fair way to recovery, and many of those included in the above figures had already rejoined the ranks.

Servia.

A Royal decree was published instituting a Superior Court of Justice at Uskub and departmental tribunals in various occupied towns in Macedonia.

No important movements of troops were reported during January.

According to Press accounts the situation of the Servian garrisons in Albania had become very difficult. They were said to be subject to daily attacks by Albanian bands.

On December 27th, the Council of Ministers decided to raise three new divisions in Macedonia.

On December 31st, the Landsturm was called out, and the age limit for liability to service was raised to 55.

Montenegro.

SIEGE OF SCUTARI.—During January, Hassan Riza continued to make sorties against the Montenegrins and Servians investing the fortress.

Two battalions of General Martinovich's Army were allowed to go on furlough in December.

On January 23rd, the Turks made a vigorous attack against the left wing of Martinovich's Army.

Greece.

ACHIEVEMENTS OF THE GREEK TROOPS.—The following statement is from Greek sources :—

"The march of the Greek Army to Florina, after the capture of Salonica, was executed in spite of the great natural and strategical difficulties. It was necessary to fight four engagements to force the passages of Komano, Ostrovo, Keriderven and Gornitsovo. The approach of the Greek Army contributed greatly to the evacuation of Monastir, which was carried out with the help of the railway. (That is why the Servians made so few prisoners). In establishing themselves at Florina, the Turks secured their retreat to Pisoderi and Korytza, and intended to form front against the two allied armies. But after the defeat at Keriderven and Gornitsovo they discovered that the Greek Army consisted of five divisions instead of only two; they were then filled with panic, and abandoned Florina in complete disorder; the cavalry pursuing them took more than 3,000 prisoners and 20 guns.

" The Crown Prince's Army traversed 280 miles, from Llarissa to Florina, in 34 days, across difficult mountains and swampy plains. In the first part of the campaign, the centre of the First Greek Army fought battles at Elassona, Sarantaporo, Tripotamos and Yenitsa; the right wing at Katerina, and the left wing at Diskata, Lazardes, Nalbankeui, Sorovitz and Banitza; all these in addition to the four battles mentioned before on the last march on Monastir. *Results* : 35,000 prisoners, including the Turkish Commander-in-Chief. *Spoils* : More than 100 guns and 70,000 rifles."

OPERATIONS IN EPIRUS.—Fighting continued in Epirus during January. The Greek forces operated from three directions against Yanina. The situation about the middle of January appeared to be as follows :—

To the south-west, General Sapuntsaki, with about 15,000 men, commenced a general advance on January 20th against the Turkish positions near Bizani. On the 22nd he reported that his right wing had reached the line Bizani—Cotsello, and had captured some guns. To the north-east, 50 miles distant, two Greek divisions (24,000) were about Kozani Kastoria, and Kozua; a volunteer corps (4,000-5,000), under General

Garibaldi, was about Metsovo. The 2nd Division (12,000) is said to have been brought by sea to Santa Quaranta and to be advancing *via* Delvinon; the 6th Division was brought by sea from Salonica to Volo; here they entrained for Kalampaka, whence they were to advance by the difficult mountain road *via* Metsovo on Yanina. The Greeks may thus

THE SITUATION IN EPIRUS IN JANUARY.

[Redrawn from the *Vedette*.]

be able to concentrate 40,000 men against Yanina, or 60,000 if the two divisions at Kastoria and Kozani can advance across the mountains.[1]

On January 18th, the Greek Crown Prince left Salonica to take command before Yanina. He arrived at Prevesa about the 23rd, and proceeded towards Yanina.

The Turks are said to be entrenched on a wide front west of the town of Yanina, and east of the lake. Essad Pasha, who had originally about 24,000 men, has been reinforced by some 20,000, the remains of Zekki Pasha's Army, who made good their retreat from Monastir by Koritsa and Liaskovici.

The Greeks were much hampered in their operations by the deep snow, which rendered the mountain tracks impassable, and by the activity of the Albanian guerillas, who harassed their communications. The *moral* of the Greek troops was, however, said to be excellent.

Turkey.

EFFECTIVE STRENGTH.—On January 4th, the *Times* Sofia Correspondent reported that the Turkish effective strength, not including the garrisons

[1] From the *Vedette*, January 22nd.

of Adrianople, Scutari and Yanina, was nearly 300,000, *viz.* :—210,000 between the Chatalja position and Constantinople; 50,000 at the Dardanelles, 10,000 about Ismid; 8,000 in the Panderma district; and 12,000 at Smyrna. Of these only three-fifths were trained troops, the remainder being of doubtful value; the supply of ammunition was stated to be adequate, but there was a deficiency of field guns, horses and transport. Another account puts the Turkish force in the Chatalja lines at 110,000.

Izzet Pasha was appointed Commander-in-Chief of the Army.

D. NAVAL.

ESCAPE OF THE "HAMIDIEH."—On January 15th, the "Hamidieh," having repaired the damage inflicted by the Bulgarian torpedo-boats on November 21st, issued from the Dardanelles and shelled Syra, the capital of Syros Island, and doing damage to the coal depôt, electric light works, and inflicting such damage on the Greek auxiliary cruiser "Makedonia," which was undergoing repairs, that she was sunk by her commander. On January 19th, the "Hamidieh," reached Port Said, where she was allowed to take a small quantity of coal, and afterwards proceeded to the Red Sea. It was understood that her destination was Hodeida.

THE NAVAL ACTION OFF LEMNOS.—The Turkish Fleet, composed of the battleships "Hair-ed-Din-Barbarossa" (flagship), "Torgud Reis" and "Messudieh," the coast-defence ship "Hassan Tewfik," the cruiser "Medjidieh," and 16 torpedo craft, issued from the Dardanelles about 8 a.m. on January 17th. It was, apparently, hoped that the "Averoff" had gone in chase of the "Hamidieh." The *Times* Constantinople Correspondent describes the engagement as follows:—

"From a comparison of various accounts it would appear that the fleet, leaving the Dardanelles, sighted the Greek destroyers, which drew off towards Lemnos, followed by the Turks. The Ottoman fleet was preceded by its torpedo flotilla, accompanied by the "Medjidieh," and, according to one account, the "Assar-i-Tewfik." As it neared Lemnos, the Greek battleships were seen emerging from Mudros Bay. After some exchanges at long range between the torpedo craft, the main fleets came into action some six miles east of Lemnos. The Greeks opened fire at 8,000 yards, the fleets apparently moving south-west and north-east respectively. The older Greek ironclads seem to have taken little part in the engagement. The same was the case with the "Assar-i-Tewfik" and the "Messudieh," if these vessels were engaged at all, while the "Medjidieh" seems to have acted as nurse to the Turkish torpedo craft from the beginning to the end of the affair. The fight resolved itself into a duel between the "Averoff" and the two ex-German battleships, wherein the "Averoff's" shooting showed such marked improvement on previous performances as to inspire the Committee organ *Terdjuman* with the belief that it was manned by British mercenaries. The "Averoff" seems to have attempted to cross the Turkish line, the Turkish vessels moving in a circle to avoid this manœuvre."

According to Greek accounts, the fighting lasted till 2.20 p.m., when the Turkish fleet entered the Dardanelles in disorder. The "Averoff" continued the pursuit till she came within range of the coast forts.

AERONAUTICAL NOTES.

BRITISH EMPIRE.

REPORT ON MONOPLANE ACCIDENTS.—The report of the committee appointed to enquire into the fatal monoplane accidents in September, 1912, was published as a Parliamentary Paper (Cd. 6506). Extracts from the report will appear in a subsequent number of the JOURNAL.

AERIAL NAVIGATION.—A Bill to amend the Aerial Navigation Act of 1911 was introduced by the Secretary of State for War. The chief provisions of the Bill may be summarized as follows :—

Extension of Power of Secretary of State to Regulate Aircraft.

The purposes for which the navigation of aircraft over prescribed areas may be prohibited under the Aerial Navigation Act, 1911, are now to include " the defence or safety of the realm;" . . . . . the area prescribed may include the whole coast line of the United Kingdom and its territorial waters. Power is also given to prescribe the areas within which aircraft coming from any place outside the United Kingdom are to land, and the conditions which they must comply with; anyone contravening these provisions will be guilty of an offence under the Act, unless he proves that he was compelled to by stress of weather, or circumstances over which he had no control.

Power to compel compliance when Aircraft Disobeys Signals.

If an aircraft attempts to fly over an area prescribed as above, or, if an aircraft coming from abroad fails to comply with the conditions as to landing, then, " any officer designated for the purpose by regulations made by the Secretary of State may cause such signals as may be prescribed by those regulations to be given, and if after such signal has been given the aircraft fails to respond to the signal by complying with such regulations as may be made by the Secretary of State, prescribing the action to be taken on such a signal being given, it shall be lawful for the officer to fire at or into such aircraft, and to use any and every other means necessary to compel compliance."

ROYAL FLYING CORPS.—The naval ratings attached to the Royal Naval Aviation School, Eastchurch, are in future to wear the designation of " Royal Flying Corps " upon their cap ribbons, instead of H.M.S. " Actæon," the parent ship of the Naval Wing of the Royal Flying Corps, and on whose books the officers and men at the aviation school are borne.

THE AUSTRALIAN FLYING CORPS.—It is now stated that about £56,000 is to be spent on the flying branch of the Australian defence forces this financial year.

AUSTRIA-HUNGARY.

MILITARY ORDERS.—The Austro-Hungarian War Office is stated to have placed orders for a considerable number of aeroplanes, to be delivered by the end of February. Twenty Lohner-Arrow machines and ten Etrich monoplanes are said to be on order.

BRAZIL.

MILITARY AVIATION BILL.—Reuter states that a Bill was introduced into the Parliament at Rio de Janeiro, 18th December, creating a school of military aviation and authorizing the Government to engage two French professional airmen; to purchase three dirigibles, two aeroplanes, six hydroplanes, and a battery of guns to be used against aeroplanes. A prize will be offered for a successful automatic stabilizer for aeroplanes.

CHILE.

MILITARY ORGANIZATION URGED.—The Chief of the General Staff has urged the organization of a military school for airmen, and the expenditure of £140,000 in buying aeroplanes and dirigibles, and erecting a Government aerodrome.

FRANCE.

NEW DIRIGIBLE.—A new dirigible, "Le Fleurus," made its first ascent at the beginning of January. This airship, which has been built in the army factory, has a cubic capacity of 6,500 metres. Its length is 77 metres, with a diameter of 12.40 metres. It has two engines, Clément-Bayard, which actuate two propellers.

NAVAL AERONAUTICAL BILL.—The recommendations of the Naval General Staff are to be embodied in a Bill. It is proposed to establish observation posts in the western Mediterranean, to which dirigibles and hydro-aeroplanes will be attached; kites will also be used for scouting purposes. The stations will be at strategical points on the French, Algerian and Tunis coasts, and a similar organization will be created in northern waters. The cost of the scheme, which is estimated at £1,800,000, will be spread over four years.

AERONAUTICAL CENTRE.—The new *centre d'aeronautique* to be established at Mézières is to cost £72,000, and will be one of the best found in France. The centre will be commanded by Captain Clavenad, who was removed from his appointment as aviation officer in Marocco in consequence of a signed article which he published complaining of the difficulties cast in the way of organizing the Marocco air service by officials of the Ministère de la Guerre.

DEATH OF M. NIEUPORT.—M. Nieuport, the well-known aviator and aeroplane manufacturer, was killed at Etampes, on January 23rd.

ARMOURED AEROPLANE.—Orders have been given by *L'Aeronautique Militaire* for an armoured aeroplane specially designed for offensive action against airships.

RESERVE OF MILITARY AIRMEN.—The National Aerial League has started a scheme for the provision of a reserve of military airmen, the principal points of which are as follows:—

(*a*) A number of civil pilots who have obtained their *brevet d'aviateur militaire*, before incorporation, for use with civilian aeroplanes.

(*b*) To allow these pilots to go on leave as soon as they have completed one year with the aviation troops.

(*c*) Constant training of these pilots by frequent attendances at schools of instruction, and by periods of military service.

(*d*) To allow the reserve pilots special indemnities during their periods of training.

BOMB DROPPING.—Messieurs Michelin have again offered two prizes for bomb throwing:—

(*a*) £2,000 for the best score in throwing 15 bombs (weighing seven kilograms each and measuring 150 millimetres each) from a height of 200 metres. Target, a circle 20 metres in diameter.

(*b*) £1,000 for the best score in throwing five bombs from a height of 1,000 metres into a circle 50 metres in diameter. The bombs must have a diameter of 220 millimetres, and must each weigh 22 kilogrammes.

AVIATION IN MAROCCO.—On January 26th, Sergeant Feierstein, with one passenger, on a Blériot monoplane (80 h.p. Gnome engine), flew from Casablanca to Mogador (219 miles) in three hours, at an average height of over 3,000 feet.

FLYING OVER DESERTS.—Lieutenant de Lafargue has sent to the National Aerial League a report on the conditions of flying over deserts. He states that there are no difficulties as regards geography or temperature, but that machines must be large, both in size and carrying capacity, and must be made of metal, not wood. They should be absolutely trustworthy for 400 miles, and be able to carry fuel for 12 hours' flight.

NEW VEHICLE FOR USE ON SAND.—The vehicle mentioned in the JOURNAL of October last, page 1486, for use over the sand of the desert, has been successfully tried in Algeria by General Bailloud, commanding the XIXth Army Corps. The vehicle is mounted on six wheels. It has wings and is driven by an aerial propeller, but does not leave the ground. General Bailloud, in this vehicle, satisfactorily covered the distance between Biskra and Tuggur (125 miles). The machine is said to negotiate the steepest sand slopes with entire ease.

GERMANY.

AERIAL MANŒUVRES.—Aeroplane manœuvres took place near Magdeburg, in January. Thirty-three officers, ten non-commissioned officers and 114 men, with 20 flying machines, have taken part.

Lieutenant Schlegel, of the Army Air Corps, was killed while flying, and his passenger, von Scheele, very badly injured.

DIRIGIBLES.—The Schütte-Lanz (rigid type) airship was formally taken over in December by the military authorities and named "S.L. 1." Orders for two new airships of this type have been given by the Government. The "S.L. 1." was returning to her shed at Biesdorf, on January 19th, when her steering gear broke. In trying to land her she became stranded on some farm buildings. She was eventually got back to her hangar in a very battered condition. The extent of the damage incurred has not, however, been divulged.

The rights of this company to sell airships to foreign buyers have been purchased by the Government, which has promised to keep the factory busy in the future.

NEW ZEPPELIN MILITARY AIRSHIP.—The new military Zeppelin airship, "Ersatz Z. 1," underwent her trials, and was taken over by the War Office on January 25th. About 550 miles were covered in 15 hours, much of the journey being made in the dark, and a speed of 46 miles per hour was attained. A minimum height of 1,000 ft. was maintained throughout, and on several occasions 4,000 ft. was attained. The airship is to be stationed for the present at Oos, near Baden-Baden.

GOVERNMENT ORDERS.—Orders for two further airships are reported to have been placed with the Zeppelin works at Friedrichshafen. Of these, one will undergo trials in February and the other in March; both were already under construction. It is stated that towards the middle of the year the War Office will possess five Zeppelin airships; a Gross dirigible will be delivered in May, and it is proposed to purchase a new Parseval.

ZEPPELIN WORKS.—Details are given in the Press of the enlargement of the Zeppelin works, at Friedrichshafen, on Lake Constance. The airship shed, which has just been reconstructed, is now increased from 590 ft. to 630 ft. in length, the largest Zeppelin built being only 525 ft. long; it is now possible to construct two dirigibles simultaneously. The whole works have been extended and the hands increased from 170 to 230, so that the firm can now turn out eight dirigibles a year, each taking three months to build. In addition to War Office orders, the "Sachsen" is under construction, being ordered by the German Airship Company for its passenger service. Further additions to the works include an experimental laboratory and two floating sheds for hydro-aeroplanes.

AIRSHIP SHED AT HELGOLAND.—The German Press announce that work will be commenced in the spring on an airship shed at Helgoland. The shed will be of the revolving type, for use whatever the direction of the wind, and it is to be erected in the deep depression known as the *Sapskuhle*, now used as the officers' garden of the garrison. It is stated that as a precaution against the dropping of bombs from aircraft, the shed will be built to rest on the bottom of the depression, with the roof bridging the sides of the gap, the position being thus practically invisible from above. When needed for the entrance or exit of an airship, it will be raised to the surrounding surface, after the manner of a gasometer.

N.C.O.'S AS PILOTS.—Two N.C.O.'s passed the qualifying tests during the month for the military pilot certificate, being the first members of the non-commissioned ranks to do so.

FLYING BADGE.—On the occasion of his birthday, the Kaiser instituted a badge for military aviators who have obtained their certificate. In addition, the Order of the Crown, Fourth Class, has been awarded for overland flights to eight military aviators.

GOVERNMENT AWARDS.—The Government awards for aeroplane motors are announced. The Emperor's prize of £2,500 is awarded to Benz & Co., of Mannheim; the Daimler works, at Stuttgart, win both the Chancellor's prize of £1,500 and the Minister of Marine's of £500; the War Minister's prize of £1,250 has been gained by the New Automobile Co., of Berlin. A further competition is being organized, the prizes being drawn from the National Aviation Fund.

SUPPLEMENTARY ESTIMATES FOR AIRCRAFT.—Supplementary estimates for a little under £1,000,000 are, it is said, to be presented to the Reichstag next month—of this sum about one-half will be spent on airships of the

rigid type, Zeppelin and Schütte-Lanz. Apparently the £362,000, which has been publicly subscribed during the year, is to be devoted to the development and purchase of aeroplanes.

AIRFLEET LAW.—There is an agitation in the Press for an airfleet law on the lines of the Navy law, but at present it seems scarcely likely to assume definite shape.

ANTI-AIRCRAFT GUNS.—The firm of Ehrhardt, of Düsseldorf, are reported to have carried out successful tests with two new anti-aircraft guns. These are of 5 cm. and 10.5 cm. respectively, and are capable of firing at an elevation of 70°, employing a specially designed shrapnel shell. They are mounted on automobiles for purposes of pursuit.

TWO-YEAR VOLUNTEERS.—It is officially announced that commencing October, 1913, two-year volunteers will be permitted to serve with the flying troops.

VOLUNTEER AIR CORPS.—With reference to the Volunteer Air Corps, the formation of which was referred to in the JOURNAL for January, 1913, p. 132, the allowances are stated to be £150 for each aeroplane, provided it is of the same type as those used in the Army, and, in addition, £2 a day while out for training.

Each member must put in annually one tour of duty of not more than ten days. On enrolment into the Corps, a member has to undertake to serve for three years.

HOLLAND.

FLYING SCHOOL.—A flying school has been opened at Ede. The machines available for the instruction of pupils are three Sommers and three Blériots.

ITALY.

PARSEVAL AIRSHIP.—It is reported in the Press that a Parseval airship has arrived at Mestre, near Venice, and that it will be sent to Campalto.

The National Subscription has reached to a sum of £200,000.

RUSSIA.

DIRIGIBLES.—The envelope of the new dirigible, "Albatross," lately delivered to the military authorities, burst on being filled, through faulty construction. The dirigible is therefore useless till provided with a new envelope.

AVIATION SCHOOL.—On conclusion of the 1912 officers' class, the Officers' Aviation School at Gatchina was temporarily closed and the personnel transferred to Warsaw, where experimental flights are being carried out and instruction given.

LONG DISTANCE FLIGHT.—A prize has been offered by a private individual for the first flight, from Moscow to St. Petersburg and back, in 1913.

PURCHASE OF AEROPLANES.— It is reported in the Press that the Government have ordered 116 aeroplanes from Russian firms, *viz.*, 70 monoplanes of 80 h.p., and 46 biplanes of 100 h.p., fitted with a Q.F. gun.

FRONTIER REGULATIONS.—The Russian Government have forbidden flights across the Russian western frontier for six months up to July 14th, 1913, and announced that anyone contravening the regulations is liable to be fired at. The regulations seem to have caused some protest in Germany.

SPAIN.

FLIGHT OVER THE PYRENEES.—A flight over the Pyrenees was accomplished on January 24th, by the aviator, Oscar Bieder, who started from Pau, and flying by way of Jaca, reached the military aerodrome at Madrid, after a flight of nearly eight hours.

SWITZERLAND.

FLIGHT OVER THE ALPS.—A Peruvian aviator, Jean Bielovucic, ascending at Brigue, on January 25th, crossed the Simplon and descended at Domodossola, having flown the Alps in 26 minutes. He flew a Hanriot monoplane, with a 80-h.p. Gnome engine.

CORRESPONDENCE.

JACOB'S RIFLES.

We have received the following communication from Lieut.-Colonel A. C. Yate, late 129th (D.C.O.) Baluchis :—

In the November, 1912, number of the JOURNAL appeared an article contributed by me under the title of "Sir Henry Green and the Sind Frontier." That article elicited from an anonymous, but evidently well-informed correspondent, a letter which corrects an error and throws light on other points. It has also led me to make some further researches, the result of which I give below. The letter runs as follows :—

"DEAR SIR,

I was on the frontier in 1860. There were then two regiments of Jacob's Rifles. The 1st under Mainwaring, the 2nd under Boodle. The latter was disbanded in 1861 or 1862. Bell, afterwards commandant of the 1st Baluchis, was adjutant of the 1st, I think; anyway, he was second-in-command of it in 1863, for I met him then as such.

Jacob's Rifles could not have been in Persia. That was in 1856-57, in the cold weather. My regiment, an European one, started for down country, but was stopped on the top of the Bhore Ghat and ordered back. That was in March, 1857, as peace was proclaimed.

Bell was with the Light Company of the 14th N.I. in Persia. The regiments of the Bombay Army furnished their Light Companies, and formed a Light Battalion.

The rifle of Jacob's regiments was double-barrelled and short. It threw an explosive bullet. The bayonet was a sword—could be used as such, or "fixed" as a bayonet on the rifle.

Your very interesting paper gave me great pleasure to read. Shall I sign myself?

Yours faithfully,

"Khanghar"[1]

On re-examining the article which I sent to you for publication I find that I clearly stated that Jacob obtained authority in 1858 to raise two regiments of infantry. Inadvertently, some 28 lines lower down, I stated that "Jacob's Rifles" served with the Persian Expedition, instead of saying, as I should have done, that *Jacob's rifles* were used on that

[1] Khanghar was the name of the village which Jacob selected as the site of Jacobabad.—A.C.Y.

expedition. If anyone has time and opportunity to refer to Captain Pelly's *Views and Opinions of General Jacob*, 2nd edition, pp. 233-84, he will see that Jacob's experiments with his rifle and bullet were carried out in 1854-55-56 at Jacobabad and Karachi. The rifle was therefore ready for use before the Persian expedition. On pp. 274-5 of Captain Pelly's book we find the record of an experiment which fully accounts for this rifle and shell-bullet being used to explode powder at Borasjun. At the foot of the great rifle butt at Karachi, "built of stone, ten feet thick at the base and one and a half at the top, 100 feet long and 50 feet high," was placed a box containing 500 lbs. of powder. The area of the box was "ten feet square." Colonel Jacob and three other officers fired at a range of 1,800 yards, with the object of dropping a shell into this powder and exploding it. The date was Friday, 5th September, 1856. The practice commenced at 7 a.m. The final result must be given in the words of the "Memorandum" quoted by Captain Pelly.

> "When Colonel Jacob's little double rifle was fired for the twenty-first time, the shell from the second barrel struck the box and exploded the powder. The effect was magnificent, and so violent was the explosion, that it was thought at first that the butt wall had been blown down; but when the smoke cleared, the wall was seen standing uninjured. No rest of any kind was used. The rifles were fired from the shoulder, the shooter standing up."
>
> (NOTE.—Further examination showed that the butt had suffered a good deal from the explosion).

The Commander-in-Chief of the Bombay Army, with his Staff and a Member of Council witnessed practice with this rifle and bullet on the Flats at Bombay, at ranges from 300 to 1,200 yards, and on the 16th April, 1856, made a most favourable report on it for communication to the "Court of Directors." It appears that the Honourable Court took no practical notice of the results which had been achieved by General Jacob's skill as a mechanician and inventor. I do not find any record of this rifle and ammunition having been used in the field by the Sind Irregular Horse.

In consulting the *Records of the Sind Irregular Horse* (Vol. II. published by Smith, Elder & Co. in 1856), I find a letter dated 11th April, 1855, written by Jacob (then still but a major in the army) to Frere, which shows that, a year before he wrote that official letter which I found in the office of the Commissioner-in-Sind urging the disbandment of the 1st and 2nd Baluchis, he had made public in the plainest terms and in the most open manner his unfavourable opinion of those battalions.[1] . . . . .

How is it that such a disparaging statement could be put in print in 1856 in a large folio volume, and attract no notice? Did Bartle Frere, did the superior authorities take no exception to such remarks? Are we to suppose that the *Records of the Sind Irregular Horse* were a mere dead letter? We may be sure that the two bulky volumes would not have many readers.

When Jacob, however, a year later, elaborated and expanded the remarks referred to above, the Commander-in-Chief of the Bombay Army bade his Adjutant-General write a reply, which made it clear that "Jacob's Rifles" were not going to step into being over the corpses of the two Baluch Battalions. *And*, as I showed in my first article, before two years had passed,

[1] The passage in question is cited in Col. Yate's letter, but has been omitted for want of space.—**Ed.**

both Baluch Battalions had proved their loyalty, staunchness and efficiency up to the very hilt, and have gone on proving it ever since. I say again, what I said before, although I maintain that Jacob's Rifles fought gallantly at the battle of Maiwand, that the hand of Nemesis played its part in the order which converted "Jacob's Rifles" into the 3rd Baluchis.

It was a just and right atonement in the name of a great man, a great character, who had sacrificed his life to his keen and high sense of duty, for a grave injustice.

The whole of Jacob's letter referred to above, dated 11th April, 1855, as an outline of his conception of what an efficient Irregular Frontier Brigade should be, is a most interesting study. I really think that the Government of India might take a leaf out of Jacob's book and raise an Irregular Baluch Frontier Brigade or Division to guard the Perso-Baluch border. If we had such a force, commanded by men of the stamp of Jacob, Merewether, the Greens, etc.—and there is no lack of such men—we would not, in a moment of urgency, be reduced to exposing a gallant cavalry regiment to the ordeal to which the 39th Central India Horse has been committed for the past year. It is time, too, that the Western border of Baluchistan had some disciplined and organized local defensive force. Two very important railways will, within a very few years, have their termini, the one near the mouth of the Shatt-el-arab, the other probably at Karachi. British interests and obligations in South-East Persia increase day-by-day. The keys of the North-West frontier are no longer held in the Punjab, but at Quetta and Karachi.

(Signed) A. C. YATE, Lieut.-Colonel, late 129th (D.C.O.) Baluchis.

NAVAL AND MILITARY CALENDAR.

JANUARY, 1913.

2nd	(Thurs.)	Surrender of Turkish Garrison at Chios
3rd	(Fri.)	Arrival at New York of H.M.S. "Natal."
4th	(Sat.)	Engagement off Tenedos, between Greek and Turkish Fleets.
6th	(Mon.)	Explosion on French battleship "Masséna."
,,	,,	Balkan Peace Conference adjourned *sine die*.
8th	(Wed.)	H.M.S. "Africa" arrived at Sheerness from Mediterranean.
9th	(Thurs.)	H.M.S. "Prometheus" arrived at Plymouth from Australian Station.
15th	(Wed.)	Turkish cruiser "Hamidieh" escaped from the Dardanelles.
18th	(Sat.)	H.M.S. "Cumberland," cadets training cruiser, left Plymouth for W. Indies.
,,	,,	Engagement off Lemnos, between Greek and Turkish Fleets.
19th	(Sun.)	Turkish cruiser "Hamidieh" arrived at Port Said.
22nd	(Wed.)	Launch at Elswick of battleship "Rio de Janeiro" for the Brazilian Navy.
23rd	(Thurs.)	*Coup d'Etat* in Constantinople; Nazim Pacha killed.
24th	(Fri.)	H.M.S. "Pandora" arrived at Plymouth from Cape of G. Hope.
26th	(Sun.)	H.M.S. "Natal" arrived at Nore from New York.
,,	,,	"Dante Alighieri," first Italian Dreadnought, commissioned at Spezia.
29th	(Wed.)	Commonwealth cruiser "Melbourne" left Devonport for Australia.
,,	,,	Balkan States denounce the Armistice.

NOTICES OF BOOKS.

Military Music and its Story: the Rise and Development of Military Music. By Henry George Farmer, author of Memoirs of the Royal Artillery Band, an account of the rise of Military Music in England, with an introduction by Lieutenant Albert Williams, M.V.O., Mus. Doc., Oxon, Bandmaster H.M. Grenadier Guards. "But that which did please me beyond anything in the whole world was the wind-music which is so sweet that it ravished me."—Pepys. With illustrations. London. William Reeves, 83, Charing Cross Road, W.C.

Mr. Farmer has, within the compass of this handy volume, given us a compendious history of the Military Music of many nations from the earliest times; from the ram's-horn trumpets which brought down the walls of Jericho, to the saxophones and sarrusophones of our own day. The Spartan phalanx manœuvred to the strains of the Dorian flute, and the "long stern swell" of the long straight trumpet bade the Roman soldier close with the foe. Neither Greeks nor Romans used the drum, which was entirely an Oriental instrument; and the legions of Crassus were confused and bewildered by the incessant beating of the Parthian kettle-drums. The Crusades and the wars with the Arabs in Spain again accustomed the ears of European warriors to the sound of the drum, and thenceforth the tabor (drum) and the naker (kettledrum, from the Arabic naggara) figure prominently in the military music of Europe. Bands of musicians were the appanages of Royal Courts and of the commanders of armies in the field in feudal times, and the trumpets sounded in the lists of the tournament and made their signals heard above the din of the battlefield. It was not till the employment of regular bands of mercenary soldiers and the establishment of standing armies had superseded the feudal levies that musicians became an integral and essential part of military formations; trumpeters and kettledrummers were allotted to each troop or squadron of cavalry, drummers and fifers to each company of infantry: Louis Quatorze instituted bands of musicians in some regiments of the French Army and Charles II. imitated his example in England. In 1678 two *oboes* or *hautbois* were granted to each troop of Horse-grenadiers in the Household Cavalry. A few years later each newly-raised troop of Dragoons was equipped with one oboe and two drums. In 1783 the three regiments of footguards all possessed bands of music of eight performers each, viz., two oboes, two clarionets, two horns, and two bassoons. Eight was at first the ordinary establishment of musicians in a Military Band, and was probably adopted in imitation of the "eightfold Turkish music," mentioned by Ottoman historians. A powerful influence upon the military bands of Europe, says Mr. Kappey, as quoted by our author, was exercised by those of the Janissaries, the regular soldiery of the Turkish Empire. The Janissary Band of Music was a Head-quarter, or what Mr. Farmer calls a Staff Band, like that of our Royal Regiment of Artillery; it accompanied the commander of the army and sounded its barbarous and ear-piercing music incessantly during the course of an engagement; and the "Tabal-Khana" ceasing to play was usually the signal for a general rout. The campaigns of the Turks on the frontiers

of Poland and Germany brought many of their habits and customs into fashion with their opponents, and " Janitschar-Musik " was imitated in the military bands of the Imperialist Army, and in those of Prussia and the minor German States.

The words Atabal and Tambour, Arabic and Turkish respectively for drum, testify to the Oriental origin of that voice of war; and now the cymbal and the triangle were added to it, and also that combination of a standard and a musical instrument called the Turkish bells, but familiarly known to the British soldier as the " Jingling Johnnie." This instrument, long since disused in the service of European armies, is still in use in the military bands of Turkey, a solitary relic of the old pomp and parade which once distinguished the armies of the Osmanli Sultan.

Turkish influence also made itself felt in the matter of costume, and the negro musicians, whom it became the fashion to employ in the 18th century, were dressed in fantastic costumes of Oriental pattern. The first authentic record of the employment of black drummers in the British Service occurs in the 29th Regiment of Foot in 1759; but Mr. Farmer says " They appear to have had even an earlier existence, as Scott introduces these ' sable ' musicians into *Old Mortality*, and I have seen a negro kettledrummer in a battle picture, ' Blenheim, August 18th, 1704,' by R. Caton Woodville. A negro trumpeter in State dress of the Royal Horse Guards (1742) is also shown in R. Simkin's *Our Armies*.

As the particulars given by Sir Walter Scott regarding Claverhouse's Regiment of Scottish Lifeguards (there was actually no such regiment) are entirely fictitious, his assignment to it of negro trumpeters in silver collars is probably one of the many military anachronisms of which he was guilty; and Mr. Caton Woodville's work is not exempt from divergence—unintentional, no doubt, in his case—from historical fact. A still earlier allusion, unnoticed by our author, occurs in Bunyan's *Holy War*, in which he makes a negro drummer of Beelzebub's army beat the summons to surrender the town of Mansoul.

The drum was employed to signal as well as the trumpet, and was used also to direct the movements of troops, as was shown at this year's Naval and Military Tournament in the display of the Manual and Platoon Exercises of 1749 given by men of the Yorkshire Regiment. Both these instruments were displaced for signalling purposes by the bugle, which came into vogue with the institution of light infantry corps and companies in the latter half of the 18th century; another instance of history repeating itself, for the Velites or light troops of the Roman armies used the cornu or horn, while the ordinary legionaries employed the tuba, or straight trumpet. Light infantry regiments were given bugles instead of fifes and drums, and the invention of the key-bugle by James Halliday, Bandmaster of the Cavan Militia in 1810, enabled them to organize bugle bands, and greatly extended the scope of the instrument which soon found its way into all our regimental bands.

During the 18th century brass bands were only employed by regiments of Royal Guards and certain crack regiments of cavalry and infantry of the line, whose proprietary colonels had sufficient wealth or taste to induce them to patronize such an institution. In Great Britain the burden of supporting a band of music was thrown entirely upon the colonel and the officers, but in Prussia, and in most Continental countries, the expense was borne by the State. The Germans surpassed all other nations in the excellence of their military music, and the general adoption of bands of music in the British Army dates from the Seven Years' War, when a

large proportion of the British Army was serving in Germany. The famous band of our Royal Regiment of Artillery, of which Mr. Farmer, in a former volume, has given a full history, was raised in Germany during the course of that war, and the rules laid down for its conduct and maintenance are here given in full. It consisted as usual of eight performers, who were to be "looked upon as actual soldiers, and cannot leave the regiment without a formal discharge." Rule six of the Band Regulations runs as follows:—

"The musicians shall be obliged to wait upon the commanding officer so often as he shall desire to have musick, without any hope of gratification, but if they shall be desired to attend upon any other officer, they are to have a ducat per night, but in England half-a-guinea."

Paragraph seven would delight the soul of the present Chancellor of the Exchequer; it runs, "Should the aforesaid musicians be taken sick, they are to be attended by the surgeon of the regiment, for which they are to allow five-pence farthing, sterling, monthly, to be given out of their wages."

Rule four lays down that the aforesaid musicians shall be clothed by the Regiment. From the first inception of uniform in standing armies it had been the custom to clothe trumpeters and drummers in the livery of the captain or the colonel; and as the facings of regimentals were usually of the colour of the colonel's liveries, it came to be the rule that the dress of the musicians should be the exact reverse of that of the rank and file; thus if a regimental uniform was red with green facings, that of its bandsmen would be green with red facings. This fashion lasted in most European armies until late into the 19th century. The dress of bandsmen was often regulated by the taste of the colonel or the band committee, or by some prevailing fashion, and was made as brilliant and conspicuous as possible in order to make an imposing show at the head of the regiment. Mr. Farmer quotes from *James' Military Dictionary*, published in 1816, "It is often asked why the dress of musicians, drummers, and fifers, should be of so varied and motley a composition, making them appear more like harlequins and mountebanks than military appendages." These vagaries lasted long after the War Office had taken over the regulation and supply of the uniform of bandsmen. Up to the time of the Crimean War the bass drummer, cymbal player, and trombone player in the band of the Scots Guards were apparelled in crimson shakos and plumes and crimson jackets and trousers, all plentifully bedizened with gold lace. The bandsmen of a regiment of Bengal Native Light Infantry wore crimson shakos and crimson trousers with their regulation white coatees. These picturesque irregularities have now entirely disappeared, and the State liveries of the musicians of our Household Cavalry and the laced coats of the drummers of the Foot Guards are the sole survivals of the old picturesque costumes.

The military music of France shared in the general elevation of the military over the civil element under the régime of Napoleon, and surpassed that of all other nations, who, however, quickly followed the example thus set them, and vied with each other in the number, the strength, and the quality of their regimental bands of music.

Mr. Farmer traces the rapid and progressive development which has taken place since the era of the French Revolution. The Royal Artillery Band of eight musicians in 1752, now numbers 90 performers. The 67th

Regiment of Foot (now the 2nd Battalion Hampshire Regiment) always kept its band at a strength of 67 musicians. Mr. Farmer gives the strength and composition of British, French, Russian, Prussian, Austrian, and Belgian regimental bands at different periods, a list of the most celebrated British bandmasters from 1800 to the present time, and much interesting information about the employment of bands and musicians during the Peninsular and Crimean Campaigns, which the exigencies of space unfortunately prevent us from noticing more in detail, and for which we must refer our readers to the book itself. Mr. Farmer has brought his history down to the period of the unification and systematization of British military music due to the publication of Messrs. Boosey's *Military Journal*, and the installation of the School of Military Music at Kneller Hall. But he might easily have expanded his treatise into a larger volume; for instance, he has only mentioned the bagpipe as an instrument of martial music in the middle ages, and has made no allusion to the pipers and pibrochs of our Highland regiments; nor has he mentioned the variety of bands of music in our native Indian Army, some of which attained to a high degree of excellence, as for instance the famous string band of the Hyderabad Contingent at Bolarum.

The book contains in the text several musical scores of marches and other pieces as played by British and Continental military bands, the earliest specimen being fife music played to accompany the exercises of the Honourable Artillery Company of London in 1638. There are many illustrations to the book; the frontispiece shows the band of a regiment of Foot Guards at the guard-mounting at St. James' Palace in 1790; there are many woodcuts in the text, some showing types of military musicians in mediæval times, but no modern ones; others depicting musical instruments, including a full-page one of the "Jingling Johnnie." The book is provided with an index, which might be made more complete; for instance, the name of Sarrus, the French bandmaster and composer, who invented the instrument called after him, the sarrusophone, is omitted. There are a few trifling printer's errors in the text: at page 57, line six, "appears" should read "appear," and the "r" should be elided from "Peninsular" at page 88. The word "Army" should be inserted after "Austro-Hungarian" on page 72, line five.—F.H.T.

The Campaign in Alsace. By Brig.-General J. P. Du Cane, C.B. Hugh Rees. 174 pp. With eight maps. London.

The author states that this little book is composed of lectures given at the Staff College, and it certainly forms a model for any educational work on military history. Only so much of the strategy is given as is necessary to an understanding of the movements leading up to the battles of Weissenburg and Woerth, the object being to combine the study of tactics from history with the principles laid down in F.S. Regulations. Though the narrative is succinct, the author has not made the mistake of suppressing all those picturesque details which form the romance of war, and serve to fix the more important features in the reader's mind. The result is an eminently readable and graphic account.

Equally interesting are the criticisms by which is clearly shown the manner in which the tactics of the opposing forces diverged from our present regulations, and the consequences entailed. The extent to which the features of the battles would probably be altered by the improvement

in arms of the present day is treated exhaustively, more particularly in the case of the artillery. Assuming the Vth and XIth Corps at Woerth to be represented by two modern British divisions, the author gives his proposed disposition of the artillery for the various phases of the attack, to conform with the doctrine of "economy of force," which is of special interest, coming as it does from such an acknowledged authority.

He considers that the great massed batteries formed by the German artillery would be foredoomed to failure, and he first distributes a portion of the artillery of the Vth Corps over a considerable front to get converging fire, and ultimately allots some three miles of front for the 144 guns of the two British divisions. From a study of Map 7, it would appear that only some 1,500 yards would be left for the 72 guns of the IInd Bavarians, to be subsequently reinforced by 72 more guns of the Ist Bavarians.

The French might have found it equally difficult to accommodate about 200 guns, representing the artillery of a similar force at the present day, instead of the 60 odd guns actually employed on the position.

On page 109 the author criticises the over-extension normally seen at manœuvres; it is owing to this, and to the smallness of the forces employed, that the necessity for husbanding space suitable for artillery is not sufficiently appreciated in the British Army.

The advocates of massed batteries might well quote Woerth as a battlefield in which long lines and even tiers of guns would be inevitable unless a proportion of the artillery, like the French reserve, was content to remain inactive until the battle was lost.

Attached as appendices are two schemes based on these battles and adapted to country near Salisbury, which officers who have to conduct "Regimental Exercises" will find of great assistance in working out similar schemes.

Excellent maps are attached, with panorama sketches of the battlefields which should be invaluable to anyone not acquainted with the ground.

We have no hesitation in saying that the book will interest all soldiers, but we specially recommend it to those intending to study the history of any campaign, either for examination purposes, or with a view to instructing others.

Problems of the Pacific. By Frank Fox. Williams & Norgate. London, 1912.

What is the problem of the Pacific? Mr. Fox, in his admirably written book, tells us that it is the question of the eventual control of that ocean, and the consequent possession of the supremacy of the world. For he regards it—and in all probability rightly so— as the future scene of the greatest rivalries between nations, from both the political and commercial points of view. There is so much that is problematical in the nationalities inhabiting its shores. The rapid rise of Japan, the newly-commenced awakening of China, the imperial ambitions of the United States, and the development of the great British self-governing Dominions, are all factors full of potentialities, and Mr. Fox carefully weighs and discusses them. Who is to control the Pacific? A White Race or a Yellow Race? and if the former, what nationality? Mr. Fox endeavours to indicate the most likely answers to such questions, basing his deduc-

tions upon facts which are already known. As may be expected, he comes to no very definite conclusion, but he puts forward his arguments with accuracy and judicial calmness, leading the reader to a position from which he can form judgments for himself.

Mr. Fox believes that the future domination of the Pacific will lie in the hands of the White Races. Of the Yellow Races, Japan is at present the Power of the Far East. But the author has no great belief in her future. He regards Japan as a poor country with no resources of importance, and considers that her success in the war against Russia, which she won through the disorganization and inferiority of her opponent rather than through any special brilliance of her own, has caused her, he says, to be overrated, and cannot be taken as typical of her probable prowess against a European Power. The Japanese are imitative and quick at assimilating European knowledge, rather than creative. From an industrial point of view, although every effort is made to create and encourage manufactures, cheap labour and a local coal supply of poor quality are her only advantages, and the former is already being adversely affected by modern ideas. The possibility of a Yellow alliance between her and an awakened but jealous and antagonistic China is remote. China, however, is an unknown quantity of considerable potentiality. At present her power is negligible, but her awakening has already begun, and in the author's opinion, it seems likely that with her vast resources she will eventually take the place of Japan as the Asiatic factor in the problem.

Russia is another unknown factor. She has received from Japan a great set-back in the Pacific, but it would be a mistake to judge her future power by the result of a war fought under the handicap of internal disorders at home. For the present only, she is more or less out of the reckoning. But as regards the ambition of the United States a formidable factor appears. She has a large and powerful navy, which the completion of the Panama Canal will enable her to move quickly from one ocean to the other; she has a long Pacific coastline, and naval bases in the Hawaiian group and the Philippines. The entrances to the Panama Canal are being fortified, which will give her control of it in war. Her wealth and resources are enormous, and her industrial and commercial progress rapid. Mr. Fox believes that her aim might well be the conversion of the Pacific into an American lake, in the course of which she would inevitably come into collision with the Yellow Races and the great British possessions.

The remaining Power in the Pacific at the present day is that of the British. Germany and France are represented, it is true, but to no important extent; and Mr. Fox has no great belief in the future power of the Latin republics of South America, though he admits them as unknown factors. The British Empire, however, has a magnificent position, and her power in the future of winning and keeping the mastery of the Pacific seems to depend on the development of her great self-governing Dominions—Australia and New Zealand, and Canada. Sparsely populated at present, but with vast natural wealth, their possibilities are enormous. The British Empire in the Pacific possesses linking lines of strategic stations. The Indian Empire, which requires control rather than development, is a powerful supply base.

Mr. Fox regards Australia as "potentially the greatest asset of the British race." The Australian is patriotic, determined, and somewhat aggressive; and the military and naval measures taken by her Labour

Government are encouraging in the extreme. All that she requires is population, and that it should be a white population is most important. The Australians are fully alive to the dangers of being overrun by Asiatics.

Mr. Fox analyses the navies and armies of the Pacific, and his book includes chapters on Treaties, the Panama Canal, and industrial and strategical considerations. He comments on the questionable wisdom of storing up trouble by preserving the teeming millions of the East, by the introduction of European sanitation and science, from the scourges which have hitherto kept their vast populations within limits. In conclusion, the British Empire and the United States are his favourites for the mastery of the Pacific, and he considers that the best solution of the problem would be the formation of an Anglo-American union consisting of Great Britain, the United States, and the British Dominions. He hopes for a conference between the two former countries, Canada, Australia, and New Zealand, and sums up as follows:—

"The position in the Pacific confronting such a conference would be this: that friendly co-operation between the United States and Great Britain would give to the Anglo-Saxon race the mastery of the world's greatest ocean, laying for ever the fear of the Yellow Peril, securing for the world that its greatest readjustment of the balance of power shall be effected in peace: but that rivalry between these two kindred nations may cause the greatest evils, and possibly irreparable disasters."—J.T.T.

The War Drama of the Eagles. By Edward Fraser. John Murray. London, 1912.

This very interesting work, dealing with some of the incidents in the deeply fascinating meteoric career of Napoleon I., gives an account of the genesis of the Eagle as the national emblem of the French Empire; describes the grand and impressive ceremonial which marked the occasion of the first presentation, by the Emperor, as an integral portion of his Coronation celebrations in 1804, of Eagles to the representatives of the Imperial Army and Fleet on the Champ de Mars; follows their vicissitudes of fortune on many a hard-fought field; and records in detail the devotion and heroism with which they were defended by those to whose care they had been entrusted.

The great respect and love invariably displayed by Napoleon for his Eagles was strikingly manifested on the day of the sad "Adieu of Fontainebleau" in 1814. The Emperor, we are told, took hold of the Eagle of the Old Guard, embraced and kissed it three times, with tears in his eyes, and displaying the deepest emotion. *"Ah, chère Aigle,"* he exclaimed, *"que les baisers que je te donne retentissent dans la postérité."*

Several Eagles, captured by British troops, were for many years deposited in the Chapel Royal, Whitehall (formerly the Banqueting Hall of the old Palace, and now the Museum of the Royal United Service Institution), whence one of them, "The Eagle of the Golden Wreath," was stolen in 1852; but those war trophies were transferred to the Royal Hospital at Chelsea at the time when the building was lent by the Crown for the purposes of the Institution. However, it is a thousand pities that a great effort was not then made to retain those most valuable relics in the historic building where they had originally been placed amid much pomp and ceremony, both religious and military.—W.F.C.

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FOREIGN PERIODICALS.

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FRANCE.

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GERMANY.

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UNITED STATES.

JOURNAL OF THE UNITED STATES NAVAL INSTITUTE. Annapolis: **December, 1912.**—Military value and tactics of modern submarines. The strategic Naval war game or chart manœuvres. Naval War College course. Mental and moral training for war. Life insurance. Notes on inspection duty at shipbuilding works. Navy yards as manufacturing establishments, and the cost of manufactured articles. A half century of Naval administration in America, 1861—1911. The launching of the "New York." Naval discipline. The U.S. Naval Disciplinary Barracks, Port Royal, South Carolina. Reformatory treatment of soldiers and sailors under sentence of detention. The U.S. Naval Academy. The U.S. ship "Idaho." Ship's general storekeeper. Mobile artillery in advance bases. Notes on signals for use in hydrographic surveying. Aviation to-day, and the necessity for a national aerodynamic laboratory. Star identification. A graphic method for determining the altitude of aeroplanes. Italian-Turkish War. Notes on the Department's proposed Personnel Bill. Consideration of the calibre of the main battery of battleships. Dispersion and accuracy of fire.

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FRANCE.

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in the Netherlands.† The Peninsular War, 1807—13.† The Battle of Sorauren (July, 1813).§ The war of 1870-71 (the 1st Army of the Loire).†

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GERMANY.

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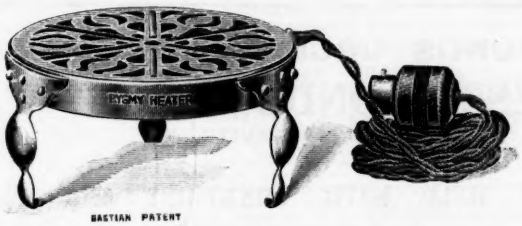

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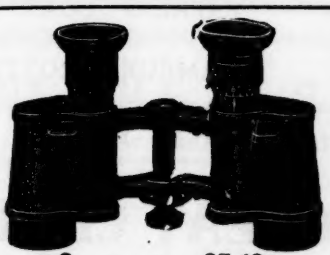

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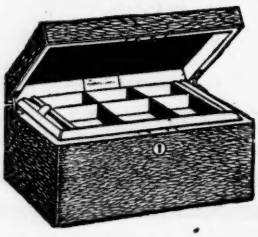

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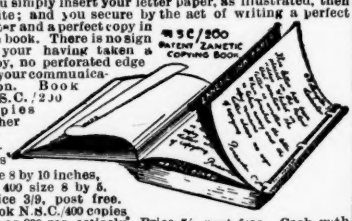

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